

Class of 2020

EMBARK PROGRAM ABSTRACTS

Finalist Presentations | June 4, 2018

OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE



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Dear OUWB students, faculty and staff,

It is my pleasure to share with you the Class of 2020 Embark program abstracts. This marks the halfway point for our second-year medical students as they continue working on their Capstone research.

While continuing to enhance their research skills, these abstracts and presentations allow students to develop proficiency in disseminating their findings. The opportunity for them to present various aspects of their project is critical in mastering future presentation skills.

We are pleased to announce that we are able to provide recognition for the top three outstanding presentations this year. The Oakland University Credit Union has generously provided funding for this student milestone. Additionally, OUWB faculty members have volunteered their time to make a determination of which students demonstrate superior presentation skills.

We are delighted that you will have the opportunity to read through this booklet containing abstracts from the Class of 2020. Although most of these students have not yet completed their research, we are confident that you will be able to ascertain the scientific or social impact that this work will have on the health of our community.

Sincerely,

A handwritten signature in black ink, appearing to read 'Robert Folberg'. The signature is fluid and cursive, with a large initial 'R'.

Robert Folberg, M.D.
Founding Dean

Oakland University William Beaumont School of Medicine
Chief Academic Officer, William Beaumont Hospital

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Arming Military Veterans: Using a targeted-video intervention to improve willingness to participate in mental health treatment

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INTRODUCTION

An increased incidence of Post-Traumatic Stress Disorder (PTSD) for U.S. veterans calls for an improvement in the efficiency of its diagnosis and treatment. Despite recent efforts, mental health treatment utilization is alarmingly low, even when initial screening is successful. Treatment barriers identified in the literature include distrust of treatment efficacy, lack of emotional readiness, stigmatization, temporal difficulties, and inaccessibility of mental health resources. This study hypothesizes that an asynchronous and anonymous video intervention that is motivational, less confrontational, de-identified, and conveniently accessible can improve participation.

METHODS

U.S. Military service-members and veterans throughout Southeast Michigan, anonymously volunteering as participants, will complete a pre-survey evaluating PTSD risk factors, individual barriers, and willingness to participate in treatment. They are then directed to a private link to watch a 15-minute video that addresses the selected barriers and offers targeted motivation for seeking treatment. The video is recorded by Dr. Ali Ghasham, a former Army medic who experienced PTSD firsthand and overcame that challenge to become a physician. A post-survey will allow paired-sample T-tests to evaluate changes in attitudes toward mental health clinicians and their treatments.

ANTICIPATED RESULTS

Participant recruitment, project application, and data analysis will begin during the summer of 2018. The video intervention is expected to improve veteran-willingness to participate in at least one mental health treatment modality. Significant differences between the participants' ordinal pre- and post-intervention perceptions of mental health professionals, treatment efficacy, stigma, and feasibility are expected.

CONCLUSION

Mental health treatment availability and quality has improved greatly for veterans/service members and significant barriers to its use have been published, but something needs to bridge the existing chasm. In efforts to ameliorate barriers, this study proposes a targeted video intervention made electronically available to individuals following deployment, or service, with the expectation of decreasing the prevalence of untreated PTSD in this population.

The Impact of a Racially Diverse Donor Population on Medical Students' Perspectives About Commonly Held Stereotypes

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INTRODUCTION

Cadaveric dissection is considered to be an essential tool in learning anatomy, and it is an important step in the professionalization of medical students. Holistic medicine prioritizes an understanding of the different factors that contribute to the health of an individual including commonly held stereotypes by physicians and physicians-in-training. The goal of this study is to determine if there is a difference in perspectives of first year medical students on commonly held stereotypes about African Americans before and after the cadaveric dissection experience with a racially diverse donor population.

METHODS

Participating first-year medical students from Oakland University William Beaumont School of Medicine will be assigned to a control group and impact group based on their exposure, or the lack thereof, to an African American donor. The control group will not be exposed to an African American donor, and the impact group will be exposed to an African American donor. The students will be administered an online survey twice. The first survey will be issued before the start of cadaveric dissection, and the second survey will be issued at the end of cadaveric dissection experience for the semester. Results will be analyzed using an ANOVA to explore differences within and between groups.

ANTICIPATED RESULTS

We expect that both groups should be able to identify stereotypes. However, we expect that there will be an overall change in the perspectives of medical students in the impact group about the surveyed stereotypes at the end of the cadaveric dissection. The impact group should have fewer stereotypes after exposure.

CONCLUSION

The results are expected to uphold the hypothesis that increasing medical students' interaction with a racially diverse donor population correlated with a change in perspectives about commonly held stereotypes.

Examining the Relationship between Subjective Well-being and Depressive Symptoms in Preclinical Medical Students

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INTRODUCTION

Stress and burnout are common in preclinical medical students and often result in symptoms of depression. Subjective well-being (SWB) is a measure of an individual's overall life. SWB is positively associated with socioeconomic status and perceived quality of social network, which are known to affect levels of depression. Previous studies have also shown that higher levels of SWB may reduce levels of depression. This study aims to identify associations between SWB and depressive symptoms, moderated by sociodemographic factors, among preclinical medical students at Oakland University William Beaumont School of Medicine (OUWB).

METHODS

In this cross-sectional study, a confidential electronic survey in Qualtrics was emailed via listserv to OUWB Classes of 2020 and 2021 (n=250). The survey included a set of sociodemographic questions, questions from the Beck Depression Inventory-II (BDI-II), and an adapted version of the College Student Subjective Wellbeing Questionnaire (Renshaw and Bolognino 2016). Once all data is collected, the correlations, if any exist, between subjective well-being, depression symptoms, and sociodemographic factors will be analyzed by SPSS.

ANTICIPATED RESULTS

Those who report higher subjective well-being scores are anticipated to report fewer depressive symptoms in the survey, while those with lower subjective well-being may report more depressive symptoms. The effect of sociodemographic factors on SWB and depressive symptoms will be examined. Participants may experience discomfort or distress with their results after taking the BDI-II survey. If students are concerned with the results of their survey, contact information for the OU Counseling Center is provided in the consent form and they will be encouraged to seek help.

CONCLUSION

The results are expected to identify a relationship between SWB and depressive symptoms, moderated by sociodemographic factors. This will potentially assist in developing methods to alleviate and lessen the incidence of depression in preclinical medical students.

Obstetricians' Knowledge, Attitudes and Practices When Caring for Bariatric Surgery Patients

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INTRODUCTION

The prevalence of Bariatric weight loss surgery has increased by 800% in the last two decades in the United States, with women of reproductive age accounting for 83% of bariatric patients. Thus it is crucial for obstetrician gynecologists (OB/GYNs) to be aware of the needs of this increasing patient population in particular because OB/GYNs are often the only primary care providers many female patients see. This research study seeks to understand the knowledge and practices of OB/GYNs when caring for patients who have undergone bariatric surgery

METHODS

A link to the online survey and information sheet will be emailed out to all OB/GYNs working throughout the Beaumont Health system. The survey will be conducted via an anonymous, self-administered online survey (Qualtrics). There are approximately 270 OB/GYNs affiliated with the Beaumont system. We are hoping to obtain a response rate of 20%. We are starting with a sample size of 55. The variables we will be considering include the knowledge and practices regarding efficacy of different contraceptives, as well as possible micro and macronutrient deficiencies following bariatric surgery.

ANTICIPATED RESULTS

Data collection will occur in the Winter of 2018, and will be analyzed in the Summer of 2018. We anticipate finding some gaps in knowledge, and areas of improvement.

CONCLUSIONS

This study will examine the knowledge, attitude and barriers OB/GYNs face when caring for bariatric patients. It is also expected that the study will identify gaps of knowledge, which would need to be addressed. The results will hopefully generate more interest and research in the area of cross-specialty collaboration between bariatric providers and OB/GYNs.

Neutrophil Gelatinase-Associated Lipocalin, Thrombocytopenia, and Acute Kidney Injury in Pediatric Cardiac Surgery: A Prospective Cohort Study

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INTRODUCTION

Acute Kidney injury (AKI) is a common and potentially fatal postoperative complication of cardiac surgery with cardiopulmonary bypass (CPB), afflicting approximately 10% of all children admitted to a Prenatal Intensive Care Unit (PICU). Early detection of AKI has been shown to be reversible in preclinical studies. Serum Creatinine remains the current 'gold standard' for diagnosis, but there can be significant delays (1-3 days) in diagnosis. Neutrophil gelatinase-associated lipocalin (NGAL) is an emerging novel biomarker for AKI, distinguished by its ability to indicate AKI within 2-6 hours. Additionally, postoperative thrombocytopenia (decrease in platelet count) has been shown to be independently associated with AKI and its severity, and is central to the pathophysiology. This study will investigate the temporal relationship between perioperative NGAL levels and thrombocytopenia in order to determine whether concomitant changes in these two biomarkers are predictive of AKI and its severity in neonates undergoing cardiac surgery with CPB.

METHODS

This prospective cohort study will collect data from neonates (approximately 80 patients aged ≤30 days) undergoing cardiac surgery with CPB. Urine and plasma NGAL levels, platelet counts, and creatinine will be collected before CPB, and at 8 hour intervals following CPB for 3 consecutive days. The primary clinical endpoint will be the clinical diagnosis of AKI, as adjudicated by an independent three-person panel. The association between rising NGAL levels and declining platelet counts will be assessed using multivariate logistic regression. Sensitivity and specificity will be assessed using area-under-the curve analysis.

ANTICIPATED RESULTS

We anticipate that increases in NGAL levels will be temporally associated with increasing levels of thrombocytopenia as well as increased risk for postoperative AKI and its severity.

CONCLUSION

The results are expected to provide crucial temporal data of biomarkers for the assessment and early detection of postoperative AKI in a neonate population, leading the way for earlier interventions and improved outcomes.

Disparity in Receipt and Utilization of Dispatch Instructed CPR

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INTRODUCTION

Dispatch-assisted cardiopulmonary resuscitation (DA-CPR) has been shown to be independently associated with improved survival and improved functional outcome after Out of Hospital Cardiac Arrest (OHCA). The objective of this study is to evaluate whether there are racial and socioeconomic disparities in the receipt of DA-CPR instructions and subsequent CPR performance.

METHODS

This study is a retrospective review of the Cardiac Arrest Registry to Enhance Survival (CARES) dispatch registry from 1/2014-12/2016. Data was collected from a convenience sample of dispatch agency supervisor audits of 911 OHCA audio recordings in one state. Elements related to dispatcher CPR instruction, barriers to bystander CPR performance, patient race (white, black, or other) and Utstein data were captured from the CARES database. This data was merged with census tract data of incident locations. The effects of race and SES were analyzed using multivariate logistic regression.

RESULTS

1872 cases from 23 dispatch agencies were identified. The population was predominantly white (70.0%), male (66.0%), with an average age of 63.5 +/-18.7. DA-CPR instructions were more commonly associated with an incident that occurred in a private residence (ORadj 3.8, 95% CI (2.5-5.8)) or in highest income quartile census tracts (ORadj: 1.65; 95%CI (1.01 - 2.72)). Older patient age (ORadj: 0.99; 95% CI (0.98 - 0.99)) and black race (ORadj: 0.61; 95% CI (0.39- 0.98)) were negatively associated with receipt of DA- CPR instructions. Subsequent performance of CPR after DA-CPR instruction was more common in witnessed arrests (OR 2.0, (95% CI 1.3-3.0)) and negatively associated with black race (ORadj: 0.31; 95% CI (0.16 - 0.58)) but not significantly different by socioeconomic or demographic characteristics.

CONCLUSION

Although this preliminary study is limited by incomplete demographic and dispatch data, racial disparities in provision of DA-CPR instructions and subsequent CPR performance were identified. These findings varied minimally by income or other demographic characteristics.

Reporting Sexual Assault: Who Would and Who Wouldn't?

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INTRODUCTION

Statistics indicate that 1 out of every 6 American women has been the victim of sexual assault. Despite its prevalence, sexual assault remains one of the most underreported crimes with little research on which factors influence the willingness of victims to report these crimes. The goal of this pilot study is to learn more about whether a woman's demographic factors affect her willingness to report an act of sexual violence.

METHODS

A qualitative, electronic survey has been developed and distributed to female students at Oakland University and to community women in Oakland and Wayne Counties. The survey includes a hypothetical scenario in which the participant undergoes sexual assault and then must decide whether or not to report the event and provide reasoning for her decision. The data will include information about each participant's race, religion, age, education level, and household income as well as information on what each participant perceives as her own personal barriers toward reporting sexual assault.

ANTICIPATED RESULTS

Among the different age groups, it is expected that older women will be more likely to indicate willingness to report sexual assault. It is also expected that minority women and women with lower household incomes will be more likely to indicate willingness to report these crimes.

CONCLUSION

Results from this pilot study will help construct a reliable profile of a woman who would report sexual assault. Information that elucidates which demographics of women are more likely to report these crimes will contribute to devising tools that can be used to combat and minimize the barriers that victims may face when reporting sexual assault.

Effectiveness of Health Information Literacy Training for Patients Experiencing Homelessness

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INTRODUCTION

Low health literacy has significant implications for healthcare including increased hospitalizations and health care disparities. This is exacerbated in patients experiencing homelessness who are at greater risk for many health conditions. Although studies have been conducted that aim to assess and teach health literacy, only few assess health literacy programs for homeless patients. This study seeks to engage medical students in community-based research projects and use health information training to improve health literacy of homeless patients.

METHODS

A medical student in collaboration with faculty developed health literacy training workshops. They established a health information station with a computer, printer, and educational materials, as well as a website with health resources. Training efficacy was assessed using a pre and post-questionnaire. Modules covering key aspects of the training were provided to participants for review.

RESULTS

23 homeless clients from Pontiac, MI were surveyed. 75% of clients' health literacy scores increased between the pre and post-questionnaires. There was an increase of 4.5% to 31.8% of clients indicating that the HOPE Resources Website was a main source of health information (p-value = 0.02). Clients indicating MedlinePlus as a main source of health information increased from 4.5% to 54.5% (p-value = 0.0003).

CONCLUSION

Health literacy training can significantly increase clients' awareness of positive health information seeking behavior and reliable health resources. The results suggest implications for creating opportunities for medical students to engage in community-based projects and providing health information literacy education as a feasible intervention to increase health literacy of homeless patients, to help reduce health care disparities.

The Effects of Spatial Ability on the Retention Rates of Minimally Invasive Robotic Surgical Skills

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INTRODUCTION

As the fields of laparoscopic and robotic surgery have grown over the last decade, researchers have investigated the possible advantages of high spatial ability in those who are learning minimally invasive procedures. Advantages have been determined in the acquisition of surgical skills. However, few studies have addressed the effect of spatial ability on the retention of those skills. This study aims to determine if novices with high spatial ability display greater retention rates of surgical skills demonstrated when performing a small bowel anastomosis simulation, relative to their low spatial ability peers.

METHODS

Participants will include M3 and M4 medical students, along with PGY1-6 surgical residents, with stereoscopic vision. Participants will complete a Mental Rotations Test to assess their spatial ability. This will facilitate their allocation to either the high or low spatial ability group. Participants will then be taught the “thread the needle” task on the MIMIC surgical simulator. Participants will be instructed to train to proficiency on the task, as defined by the simulator. Those who successfully reach proficiency will enter the attrition phase of the study, where it is expected that skill performance will decline. The attrition phase will span 6 months, with re-testing occurring at 1, 3, and 6-month intervals, and will include a formal evaluation of the participant’s ability to complete the trained task on the simulator. Data will be analyzed via the appropriate parametric or non-parametric inferential statistical test, and corresponding post-hoc test (Spatial ability vs. Attrition Period).

ANTICIPATED RESULTS

Results are expected to support the hypothesis that individuals with higher spatial ability will display higher retention rates of surgical skills on the small bowel anastomosis simulation relative to their low spatial ability peers.

CONCLUSION

The results could significantly impact the approach to surgical education and may call for modifications in current surgical curricula for minimally invasive surgery.

Potential Predictors of Transformation from Monoclonal Gammopathy of Undetermined Significance to Multiple Myeloma

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INTRODUCTION

Monoclonal gammopathy of undetermined significance (MGUS) is an asymptomatic premalignant condition that carries the risk of progression to malignancy, namely multiple myeloma (MM). Identifying risk factors for progression to MM can be useful in preventing or delaying the development of cancer. A previous study has identified 3 major non-modifiable risk factors related to progression from non-IgM MGUS to MM. This study will add to the literature by identifying modifiable risk factors associated with cancer progression, as well as assess the differences in rates of progression between Black patients and their Caucasian counterparts.

METHODS

Charts of patients at Beaumont Hospital in Royal Oak diagnosed with MM and a history of non-IgM MGUS will be reviewed for potential modifiable and non-modifiable risk factors. Potential risk factors that will be assessed include race, age, sex, BMI, concentration and type of M-protein at diagnosis of MGUS, comorbidities, and time from identification of MGUS to diagnosis of MM. Multiple logistic regression analysis will be completed to determine whether there are associations between each variable assessed and the outcome of multiple myeloma.

ANTICIPATED RESULTS

This study expects to confirm previously identified non-modifiable risk factors, and identify new, modifiable risk factors such as BMI and comorbidities. Additionally, we expect to identify significant differences in rates of progression between Black and Caucasian patients.

DISCUSSION

Findings can inform best practice regarding standard of care for those diagnosed with MGUS and have associated risk-factors related to progression to MM. Potential changes to care include addressing modifiable risk factors to reduce the risk of progression, and determining the best timeline for disease monitoring and intervention initiation.

Role of Cesarean Section Committee in Safe Reduction of Primary Cesarean Section

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INTRODUCTION

William Beaumont Hospital, Royal Oak, is a 1070-bed academic-community hybrid facility in southeastern Michigan performing approximately 6000 deliveries annually. The obstetrics department has a multidisciplinary cesarean section review committee (CSRC) which includes Maternal Fetal-Medicine (MFM) specialists, faculty and private obstetricians, nurses, midwives, residents, anesthesiologists, and quality administrators who meet at least every 1-2 months. The quality leadership team then reviews all primary cesarean cases using the American Congress of Obstetricians and Gynecologists (ACOG) / Society for Maternal- Fetal Medicine (SMFM) criteria and selects cases of concern for further independent evaluation by two obstetricians. At the committee meeting, concerning or controversial cases are discussed. The two obstetricians and the CSRC review each case by filling out a form that includes standard information about what stage the pregnant patient is in their pregnancy, such as cervical exam at admission, and information on the newborn such as birth weight. The form also includes information on whether the reviewer believes the OB/GYN who performed the cesarean complied with guidelines, whether there were opportunities in care and whether or not the reviewer would have waited. Finally, the form has the reviewer go through a list of factors for cesarean section and marks off the ones that apply to the case that they are reviewing. The purpose of this project is to analyze the effectiveness of the multidisciplinary review committee in reducing primary cesarean sections. The hypothesis is that a monthly review committee will decrease the number of unnecessary primary cesarean sections over time.

METHODS

This is a retrospective chart review that involves analyzing two individual obstetrician reviews as well as the CSRC results. The information from these three sources will be put into an Excel spreadsheet. Next, the data will be analyzed to look for trends. The percentage of cesarean sections that met guidelines (yes or no), whether there were opportunities in care (yes or no and, if so then, what) and whether the reviewer would have waited (yes or no) will be calculated for each month. The specific opportunities for care that reviewers mention will be sorted to see if there is a recurring opportunity to improve care. The percentage of total primary cesarean sections will also be compared from month to month.

ANTICIPATED RESULTS

The expectation is that fewer cesarean sections were performed and more ACOG/SMFM standards were followed as the CSRC committee matured with time.

CONCLUSION

William Beaumont Hospital's integrated cesarean section review committee will be analyzed to determine the effectiveness of the committee and opportunities in care in cesarean sections.

Analysis of Acute and Late Toxicity in Patients Treated for Prostate Cancer

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INTRODUCTION

Prostate cancer is the most common cancers among men, optimizing an effective method of treatment is very desirable. Ideally, this treatment should be curative, minimally toxic, and cost-effective. High-dose rate brachytherapy (HDR-BT) is one such treatment and continues to evolve towards a more cost-effective treatment model, with fewer total treatments. We conducted this study to evaluate urinary and gastrointestinal (GI) toxicities in the acute and late periods associated with two different radiotherapy regimens in the treatment of prostate cancer.

METHODS

We collected and compiled this information in a retrospective manner by reviewing patients' charts and comparing toxicities from the HDR-BT and low-dose-rate brachytherapy (LDR-BT) treatment regimens. HDR-BT patients received between 950-1100 dose per fraction with fewer treatments and LDR-BT received between 550-650 dose per fraction with more treatment sessions. We reviewed 85 patient charts; 57 patients (67%) received HDR-BT with 28 (33%) receiving LDR-BT.

RESULTS

Our median follow up time was 14.1 months. Acute and late urinary and GI adverse events were comparable between patients receiving LDR-BT and HDR-BT. LDR-BT group had 96% of patients with an acute urinary issue with HDR-BT having 95%. In the late setting, LDR-BT group had 96% of patients with a urinary issue with HDR-BT having 94%. In the LDR-BT group, 86% of patients had both acute and late adverse events while HDR-BT had less at 76%. Regarding GI adverse events, LDR-BT had 39% of patients with an acute event. HDR-BT had 40%. Comparably, the LDR-BT treatment group had 32% with a late effect versus 22% in the HDR-BT. 14% of LDR-BT patients and 17% of HDR-BT patients had both acute and late effects. There were two patients in the LDR-BT and one patient in the HDR-BT that had PSA relapse.

CONCLUSION

HDR-BT offers lower costs and convenience by reducing the number of sessions a patient must undergo. With similar percentages of adverse urinary and GI events in both treatment groups, our data supports HDR-BT as a more cost-effective approach to treatment without increasing patient toxicity or sacrificing cancer outcomes. The results produced could be beneficial to the clinics and potentially could be more broadly applicable to Radiation Oncology.

Fostering Resilience in Early Medical Education

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INTRODUCTION

Patients deserve physicians who are resilient to stressors that impact their ability to respond to patients with compassion. Medical education should promote resilience—an attitude that promotes healthy engagement with challenge and the ability to grow stronger from adversity. This attitude promotes long-term career satisfaction and confers protection against burnout.² This study aims to identify effective strategies for cultivating a culture of resilience among medical students.

METHODS

All first year (M1) and second year (M2) students at Oakland University William Beaumont School of Medicine (OUWB) were invited to participate in an online survey that included the Brief Resilience Scale (BRS) and a wellness questionnaire with a free response question. The BRS quantifies students' resilience, and the wellness questionnaire identifies specific activities that correlate with higher levels. First and second years' scores were compared to assess the OUWB curriculum's effect on cultivating resilience strategies during the first year.

RESULTS

M1 and M2 scores on the BRS were developed using a Fisher's exact test with comparisons for continuous variables analyzed using a two-sample t-test. Overall, M1s scored lower than the M2s on the BRS (an average score of 3.44 versus 3.58 for the M2s), however results were not statistically significant (likely due to a small sample size of 9 M1s and 24 M2s). There was not much difference in the average score between the two classes ($p=0.737$). The M2 students averaged only slightly higher on the wellness questionnaire (an average score of 7.12 ± 1.3 versus the M1 average score of 6.89 ± 1.17). The difference was not statistically different ($p=0.636$).

CONCLUSION

Identifying effective strategies that foster resilience among students is key to the success of healthcare training programs. The most resilient students have self-care or wellness routines that incorporate time for: watching movies, spending time with friends and family, reading/writing for pleasure, and exercising. This study promotes awareness about the protective effects of resilience, while engaging in a conversation about how to better prepare physicians for the challenges ahead.

Does Double Coverage Double Cover: Sub-analysis by Organism

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INTRODUCTION

Gram-negative bacteria exhibit high levels of resistance to antibiotics. The practice of double coverage is used in the hope that second-line antibiotics will have activity should there be resistance to first-line antibiotics. We have previously shown that ciprofloxacin is a poor choice as the second-line agent and that amikacin is preferred in bacteria with first-line resistance. New technologies, which rapidly identify pathogens, make it important to have pathogen-specific antibiograms so as to predict the most appropriate antibiotic regimen.

METHODS

A retrospective analysis of antibiotic resistance in all Gram-negative clinical isolates from Beaumont Royal Oak's Clinical Microbiology Laboratories from 10/1/2011 through 12/31/2017 was performed. 248,658 isolates were identified, and those with missing data, duplicates, or not relevant to the study were removed, leaving 170,071 isolates for analysis. Gram-negative antibiotic resistance was tallied for every isolate based on its genus and species.

RESULTS

All pathogens showed high ciprofloxacin and low amikacin resistance with two exceptions. For *Serratia marcescens*, ciprofloxacin non-susceptibility was 7.6% when isolates were non-susceptible to any first-line antibiotic. Thus, for *S. marcescens*, ciprofloxacin is an acceptable second-line agent. If the isolate was specifically non-susceptible to cefepime, which was rare, the non-susceptibility to ciprofloxacin increased to 77%. Non-extended-spectrum-beta-lactamase (ESBL) producing, cefepime non-susceptible *Proteus mirabilis* is 65% non-susceptible to amikacin. ESBL producing, cefepime non-susceptible *P. mirabilis* is only 3% non-susceptible to amikacin.

CONCLUSION

Overall, the results of this study show that ciprofloxacin is a poor choice as a second-line antibiotic for Gram-negative infections regardless of the pathogen, with the exception of *S. marcescens*, while amikacin is a better choice with the exception of non-ESBL, cefepime non-susceptible *P. mirabilis*. This suggests that cefepime and ciprofloxacin resistance are genetically linked in *S. marcescens* and that cefepime resistance is genetically linked to an aminoglycoside modifying enzyme in non-ESBL *P. mirabilis*.

Hip Labral Tear Diagnosis Trends 2007-2016

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INTRODUCTION

Tearing the acetabular labrum destabilizes the hip joint and increases risk for articular damage. Symptomatic tears result in hip pain, clicking, catching, locking, or giving way. Past research demonstrated an increase in hip labral tear diagnosis rate from 2006 to 2009. This research examines the trends in this diagnosis from 2007 to 2016 and attempts to explain changes by considering demographics data including sex, age, and body mass index (BMI).

METHODS

We identified 2,843 patients with hip labral tears diagnosed between 2007 and 2016 and compared them to 34,184 hip pain patients using Cochran-Armitage tests for trend. The age and BMI data from these patients was compared over time using linear regression. A subset (n=1784) received an MRI. Location and grading of the labral tears were compared along with the proportion of cases with a procedure.

RESULTS

The proportion of hip pain encounters presenting as labral tears increased significantly from 3.68% in 2007 to 8.62% in 2016 (Trend $P = 0.0013$). Overall, the 8.82% labral tear rate found in male patients between 2007 and 2016 is higher than the 8.07% labral tear rate found in female patients (Chi-Square $P = 0.0165$). However, the female subset trend of 3.13% in 2007 to 8.77% in 2016 (Trend $P = < 0.0001$) was significant while the trend in males was not (Trend $P = 0.9288$). The patient average age did not change significantly, but the average BMI trended upward ($P=0.0007$). The proportion of labral tear cases with an associated procedure trended downward ($P = < 0.0001$).

CONCLUSION

Hip labral tear diagnosis rate has been proportionally increasing from 2007 to 2016. While increasing BMI could play a role in changing diagnosis trends, surgeons are operating on proportionally fewer cases. Since surgery carries risk, trend awareness reminds doctors to only operate when appropriate.

The Impact of Residency Photos on Patient Satisfaction

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INTRODUCTION

Patient perception of care is an important component of improving healthcare quality. Patient perception of care is currently measured as patient satisfaction. Existing literature suggests that one way to improve patient satisfaction is to change the physical environment with which the patient interacts. In this pilot study, the intervention will involve hanging up labeled resident photographs on inpatient unit corridors to be readily visible to patients and visitors. The resident photographs will have information regarding their name and residency status. The primary goal of this study is to assess the impact of a photograph treatment using resident photos on patient satisfaction based on HCAHPS scores.

METHODS

Three floors were collaboratively identified with the Chief Nursing Officer at Beaumont Royal Oak based on consistent rotations of residents and a reliable turnover rate of patients on these floors. Data collection on each floor was run for four months - two months with photos alternating monthly (intervention group) with two months without photos (control group). Patients who were admitted and discharged between the control and intervention timeframes were accommodated by calculating the average length of stay for each unit for subanalysis. HCAHPS response submission quality from relevant questionnaire sections were defined by HCAHPS Exclusions and Eligibility criteria. A paired t-test will be used to analyze the collected data.

ANTICIPATED RESULTS

We expect that the photograph initiative will allow the patients to become more familiar with their resident physicians and therefore affect a positive change in HCAHPS scores.

CONCLUSION

The results are expected to support the hypothesis that implementing a photograph treatment using resident photos will improve patient satisfaction and thus quality of care. In addition, results supporting the hypothesis may provide a way for hospital and healthcare professionals to help improve compliance and reimbursement rates through a practical quality improvement measure.

Clinical and Economic Outcomes of Normal, Obese and Morbidly Obese Patients Following Total Knee Arthroplasty

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INTRODUCTION

The association between obesity and postoperative outcomes after total knee arthroplasty (TKA) has been widely debated. There is limited research that has analyzed the impact of obesity on economic outcomes, such as length of stay and total hospital cost for TKA. The purpose of this study is to assess clinical and economic outcomes following TKA of obese patients in comparison to non-obese patients, and to assess whether the pre-TKA medical optimization efforts implemented since 2010 have had a significant impact on the postoperative clinical and economic outcomes in this unique patient population.

METHODS

Data for this study were obtained using the National Inpatient Sample (NIS) database from 2007 to 2011. A total of 3,092,309 TKA patients were identified and divided into 3 cohorts, non-obese (19-29 kg/m²), obese (30-39 kg/m²), and morbidly obese (≥ 40 kg/m²). In-hospital postoperative outcomes and resource utilization among the cohorts were comparatively analyzed and stratified by 2007-2009 and 2010-2011. A T-test was used to analyze the collected results. Significance was assigned at P value < .05.

RESULTS

Obese patients undergoing TKA had a higher rate of any complication compared with non-obese patients (odds ratio [OR], 1.09; 95% confidence interval [CI], 1.04-1.15; p = 0.0008). They also had a higher risk of wound dehiscence (OR, 1.35; 95% CI, 1.14-1.61; p = 0.0007), pulmonary embolism (OR, 1.50; 95% CI, 1.36-1.64; p < 0.0001), and postoperative anemia (OR, 1.10; 95% CI, 1.04-1.16, p = 0.0007). Total hospital cost (USD 47,081 versus USD 45,311, p < 0.0001) and length of stay (3.47 days versus 3.41 days, p < 0.0001) were higher in obese patients.

CONCLUSION

The results indicate that obese patients are more likely to have postoperative complications and greater resource utilization. This study serves a purpose in allowing orthopedic surgeons to better predict patient and economic outcomes.

Systematic Review of the Efficacy of Interprofessional Education in Health Care

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INTRODUCTION

An integral component of working in health care involves collaboration between various members of a team including physicians, nurses, and physical therapists to name a few. Yet, little is done to train students in how such a unit functions, or to familiarize students with the training of their future teammates. As students are expected to practice as a team after graduation, it follows that training as a team, in the form of interprofessional educational experiences, may produce more efficacious learning experiences and perhaps better outcomes in the workplace. The goal of this study is to participate in an interprofessional educational experience, the outcome of which will be a systematic review produced with medical and allied health professions students and faculty working together.

METHODS

An interdisciplinary team of a medical student and doctor of physical therapy student and their mentors, will conduct a systematic review of the literature concerning the efficacy of the interprofessional education experience.

ANTICIPATED RESULTS

The timeline of this study is to complete the systematic review by the end of 2018. Overall, this study aims to demonstrate the benefits of interprofessional education in health care between medical and doctor of physical therapy students.

CONCLUSION

The authors hope to provide more evidence for the inclusion of an increased number of interprofessional education experiences early in health care education, better preparing them for interprofessional work in a clinical setting.

Analysis of Barriers Preventing Engagement in HIV Care in a Midwest Patient Population

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INTRODUCTION

According to the Centers for Disease Control, 1.2 million people are living with Human Immunodeficiency Virus (HIV) in the United States. 86% of those patients have been diagnosed, 40% are engaged in care, 37% have been prescribed antiretroviral therapy, and 30% of patients are virally suppressed. This retrospective review attempts to identify barriers, specifically in a Midwestern patient population, preventing engagement in HIV care.

METHODS

150 patient charts were retrospectively reviewed. All patients reviewed had a confirmed HIV diagnosis during an inpatient hospitalization at Beaumont, Royal Oak and were at least 18 years old at the time of their HIV diagnosis. Based on the chart review, patients were characterized as either actively engaged in HIV care or not engaged in HIV care. Variables of interest were extracted from individual patient's medical records and then analyzed to determine if there were any statistically significant differences between the cohort of patients who sought HIV care and those that did not seek HIV care.

ANTICIPATED RESULTS

Based on disparities between the number of patients diagnosed with HIV and those engaged with HIV care that have been reported on a national level, we expect that these patterns will continue in our Midwest patient population. When analyzing patients who do not engage in HIV care, we expect to see statistically significant differences in several clinical and socioeconomic variables compared to the cohort of patients that do engage in care.

CONCLUSION

The results of this retrospective chart review are expected to identify clinical and socioeconomic differences between patients who engage in HIV care following a diagnosis of HIV and those that do not engage in HIV care, specifically in a Midwestern patient population. By characterizing these differences, we can provide targeted interventions to increase the number of patients who are engaged in their HIV care.

Variations of Renal and Adrenal Vasculature and Its Surgical Implications: An Anatomical Study

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INTRODUCTION

The renal and suprarenal vasculature is comprised of specialized blood vessels that perfuse and drain the kidneys and adrenal glands. These organs play an important physiological role in maintaining homeostatic function of blood pressure, salt/water balance, glucose mobilization, adrenaline release, excreting metabolic waste, regulating electrolytes, and maintaining bone integrity. Previous studies have indicated that the vasculature of these organs commands a high level of variance among individuals and should be noted and understood. This anatomical study aims to identify common vascular variations within the renal complexes of the Midwest population and note the medical relevance to each finding, leading to more successful treatment outcomes.

METHODS

Thirty cadavers received by Oakland University William Beaumont School of Medicine (OUWB) will be dissected while taking note of the following aspects of the adrenal-renal vasculature anatomy: origins, anastomoses, positioning, and any variations that deviate from common anatomy. The data generated will be analyzed to determine recurring renal vascular variations and will be ranked from most common to least common. This information will then be translated to clinical application by noting procedural relevance of each anatomical variation.

ANTICIPATED RESULTS

We expect that upon dissection the most common occurring renal vasculature pattern will be that of standard anatomy. However, the most likely variations to be found will be within the left renal/suprarenal venous vasculature. This specific area of venous drainage is characterized by complex connections with surrounding vasculature, leading to a greater likelihood of deviation from standard anatomical positioning.

CONCLUSION

This study will help identify common renal and suprarenal vascular variations within the Midwest population through dissection of cadavers received at OUWB. These findings will help contribute further understanding of renal/suprarenal vasculature, leading to more positive clinical outcomes and decreased incidence of iatrogenic injuries.

Readmissions After Orthopedic Foot and Ankle Procedures

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INTRODUCTION

Recently, there has been interest in the increased healthcare costs per capita in the United States, relative to other countries. The United States government has identified hospital readmissions as an area for quality improvement and subsequent reduction. In an effort to improve outcomes and meet federal standards, the orthopaedic service at Beaumont performs continuous improvements and monitoring to reduce hospital visits and admissions after procedures, including surgical procedures of the foot and ankle. The focus of this study investigates multiple patient and surgical factors with the objectives of (1) elucidating causal factors of readmissions and (2) proposing methods to reduce these visits and admissions in the future.

METHODS

Inpatient and outpatient orthopaedic foot and ankle procedure data was reviewed for 6,054 patients from 10/1/2012 through 9/30/2016. Patients 10-95 years of age with a foot or ankle readmission were included in the final dataset. Cases not including foot or ankle procedures (i.e. trauma) and incomplete medical records were excluded. Chart reviews were conducted to review procedure codes to determine inclusion or exclusion and identified 134 cases of readmission. Statistical analysis was performed, using descriptive, correlation, two-sided t-test, and linear regression models to analyze the dataset.

ANTICIPATED RESULTS

Chart reviews have been completed and statistical analysis is ongoing to identify reasons for readmission and specific causal factors (e.g. patient and surgical variables) related to readmission of this patient population at Beaumont-Royal Oak. Additional recommendations for preventative and/or point-of-care measures will be reported based on specific factors identified.

CONCLUSION

The results are expected to support the hypothesis that certain patient factors lead to patient readmission after orthopedic foot and ankle procedures in the sample population from Beaumont Health. By identifying causative factors, modification of care in the postoperative period can be made with the goal of reducing readmissions and improving patient outcomes.

Gender Disparities in Total Joint Arthroplasty

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INTRODUCTION

Disparities in the healthcare system signify potential risks for vulnerable groups whose needs are not appropriately met. Several studies established basic inequalities between men and women with respect to health services availability, including total joint arthroplasty (TJA) procedures. TJA has been successful in treating end stage arthritis, resulting in a steady increase in demand for the procedure over the last decades. This project aimed to highlight the differences in in-hospital outcomes and complications experienced by male and female patients undergoing TJA.

METHODS

Our study utilized de-identified patient data from the National Inpatient Sample (NIS) database from 2006 -2011. The NIS records ICD-9-CM codes to identify granular data involved in a patient's in-hospital stay. Our data was stratified to create two cohorts of male and female patients that underwent primary TJA. We further stratified each cohort by matching for additional comorbidities using the Elixhauser Comorbidity Index. Postoperative and economic outcomes were measured for matched cohorts, respectively. Descriptive statistics were obtained, and univariate analyses using t-tests and chi-squared statistics were conducted for continuous and categorical data, respectively. Odds ratios with respective confidence intervals were calculated to assess the association of gender and post-TJA complications.

RESULTS

Female TJA patients have greater odds of having any complications compared to male TJA patients. Furthermore, female TJA patients have a longer average inpatient stay than male TJA patients. Nevertheless, female TJA patients incur less in average total charges compared to male TJA patients. Female TJA patients are more likely to be discharged to rehab, and are less likely to be discharged home as compared to male TJA patients.

CONCLUSION

Understanding these factors will help address the unmet needs and concerns of both genders regarding TJA, and to ensure that qualified patients are able to access the necessary procedures for pain relief and functional improvement.

Assessing the Perception of Healthy Eating Behaviors Among Parents of School-Aged Children

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INTRODUCTION

Parental perceptions of their children's food selection and eating habits may play an important role in determining whether children develop and maintain healthy lifestyles. The purpose of this study is to determine how parents perceive their children's food selections and eating habits before and after attending a six-week "Cooking With Kids" (CWK) program offered by the Oakland County Health Department (OCHD) at two elementary schools in Oakland County. CWK engages students in hands-on learning with fresh, affordable foods from diverse cultures. Students are encouraged to explore different varieties of foods using all of the senses, to have fun working in a cooperative environment, and to exercise choice. This curriculum was originally developed for a low-income community in the Southwestern U.S., but was adapted to be integrated into school districts and community sites across the country.

METHODS

Parents of children that participate in the CWK programs will be offered \$20 compensation for involvement in the study by completing the pre- and post- surveys that will measure their perceptions of their child's food selecting and eating behaviors. Completed surveys will be collected. The qualitative data will be compared to look for changes in these perceptions with descriptive statistics for each question. Pre-post differences will be assessed using Paired Sample t-tests.

ANTICIPATED RESULTS

Compared to pre-course surveys, the post-course survey answers will likely convey that the parents see positive differences in their child's food selection both in and outside the home. Children will be more likely to make healthier food choices, be able to prepare their own healthy meals, and to select healthier foods.

CONCLUSION

The results are expected to support the hypothesis that cooking education programs are a promising tool for promoting positive changes in children's food-related preferences and eating behaviors, as supported by parental perception of their children's participation in such hands-on nutrition education programs.

A Survey of Barriers Between Prescribers and The Michigan Automated Prescription System

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INTRODUCTION

Opioid abuse is a serious public health issue and has thrust our country into an opioid overdose epidemic. According to the Centers for Disease Control and Prevention, deaths from prescription opioids have more than quadrupled since 1999. For this reason, it is imperative to improve opioid prescribing practices that reduce exposure to opioids, prevent abuse, and stop addiction. The Michigan Automated Prescription System (MAPS) allows prescribers to track controlled substance utilization in an effort to combat rising overdose deaths. While MAPS was developed, in part, to improve responsible prescribing habits, it has been widely underused by prescribers. Oakland University William Beaumont School of Medicine partnered with the Oakland County Health Division (OCHD) and the Oakland County Prescription Drug Abuse Partnership (OCPDAP) with the overall goal of identifying specific barriers to MAPS utilization by prescribers.

METHODS

An electronic survey was created in Qualtrics® and emailed to prescribers utilizing pre-existing databases throughout Michigan. All prescribers with a DEA number were eligible to participate. The survey assessed patterns and barriers to use as well as prescriber knowledge of MAPS. The results from the survey will be analyzed using descriptive statistics, T-Tests, and the Pearson's Chi-Square Test.

ANTICIPATED RESULTS

It is expected that the results will identify several specific barriers to prescriber utilization, such as a bulky user-interface, absence of real-time data, and lack of integration into electronic medical records.

CONCLUSION

The results are expected to further our understanding of the barriers that prevent prescriber utilization of MAPS. This will guide OCHD and OCPDAP in the development of toolkits and training programs that can be used to teach prescribers how to more effectively use MAPS. Ultimately, the survey will serve as groundwork for future improvement of MAPS and prescription monitoring here in Michigan.

Simulated versus Live Ultrasound in Medical Education

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INTRODUCTION

A major difficulty in teaching ultrasound skills to students in medical schools is finding experienced faculty with the time to teach each year. New to undergraduate medical education are ultrasound simulators, which are shown to help students learn physiology, anatomy and pathology. The goal of this study is to compare the efficacy of learning ultrasound using ultrasound simulator versus faculty-led instruction with a real ultrasound machine. This study will investigate if students who learn with a simulator will score similarly on an exam (average within +/- 10%) compared with the students who learned using a real ultrasound machine.

METHODS

Using ultrasound, we will be teaching cardiac anatomy and physiology to first year medical students during their cardiovascular course. Students who volunteer to participate in the study will be randomized into two groups: one will be instructed using an ultrasound simulator; the other will learn with a faculty-led instruction with real ultrasound machine. Learning will be assessed by comparing improvements from a pre-session test to a post-session test using a student's T-test. Subjects will also take a mixed-methods survey after their lesson, asking questions about usefulness and methods of improvement so levels of satisfaction and interest can be compared.

ANTICIPATED RESULTS

Results are expected to show that students who use ultrasound simulators will learn as much as students who learn with an ultrasound probe. We expect both groups to be satisfied with their learning experience and interested in learning with ultrasound technologies.

CONCLUSION

The results are expected to support the hypothesis that medical students can, and do, enjoy learning anatomy and physiology skills through simulated ultrasound as much as the faculty-led instruction with a real ultrasound machine. These findings can validate medical schools in their decisions in investing in ultrasound simulator technologies as an effective teaching strategy.

Impact of PhotoVoice-Inspired Health Intervention on the Mental Health of Bell Building Tenants: A Mixed-Methods Program Evaluation

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INTRODUCTION

The homeless population suffers from mental illnesses at disproportionately high rates compared to the general population. Housing first (HF) programs, such as the Neighborhood Service Organization Bell Building in Detroit, Michigan, are designed to support formerly homeless individuals. PhotoVoice, a participatory research method, enables participants to use photography to illustrate their experiences and inform social action. While research on HF and PhotoVoice has been done independently, there is little research that investigates the two in combination. The primary goal of this study is to determine the impact of a PhotoVoice-inspired intervention with HF tenants. A secondary goal is to gain insight into factors that impact the mental health of HF tenants.

METHODS

30 Bell Building tenants were recruited and randomized into intervention and delayed-intervention control groups. Both groups completed pre- and post-intervention surveys on health and health-related behaviors. The intervention group participated in weekly photography workshops and health-related discussions incited by participants' photographs on health and wellness themes. Photo discussions were audio-recorded and transcribed. An iterative approach was used to analyze qualitative data. Quantitative data from the pre- and post-tests specific to mental health symptoms, based on the shortened 21-item Depression Anxiety Stress Scale (DASS), will be analyzed using t-tests and Chi-squared tests.

ANTICIPATED RESULTS

Differences in the pre- and post-tests are expected to indicate a reduction in depression, anxiety and stress symptoms in the intervention group. Qualitative analyses are expected to identify factors that impact the mental health of Bell Building tenants.

CONCLUSION

Results are expected to support the hypothesis that a PhotoVoice-inspired intervention improves the mental health of formerly homeless individuals living in HF programs and may inform future approaches to improving mental health at the Bell Building and HF at large.

Assessing Subjective Well-Being and Depressive Symptoms Among Medical Students in Clinical Years

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INTRODUCTION

Depression is a serious condition that can be exacerbated by the typical stress experienced by medical students. This study will assess the relationship between the subjective well-being (SWB) and depressive symptoms of medical students in their clinical years at Oakland University William Beaumont (OUWB) School of Medicine via a survey. Depending on the significance of the results and conclusions, recommendations could be proposed to students in order to lessen depressive symptoms and further advance medical education for the next generation of doctors.

METHODS

An anonymous electronic cross sectional survey, consisting of three parts, will be distributed to 3rd and 4th year OUWB medical students via Qualtrics to measure the relationship between SWB and depressive symptoms in these students. The first section will involve general non-identifiable socio-demographic information (gender, age, children, etc.). The second section will assess SWB using the College Student Subjective Wellbeing Questionnaire (CSSWQ) by Renshaw and Bolognino. The last section will assess depressive symptoms using the Beck's Depression Inventory (II). Once all data is collected, the correlations, if any exist, between subjective well-being, depression symptoms, and sociodemographic factors will be analyzed utilizing SPSS.

ANTICIPATED RESULTS

The results of this study are expected to show a negative correlation between the SWB and depressive symptoms. These results would be in line with previously published research, but in a different population.

CONCLUSION

The results of this study may offer insights to the medical education office, which may lead to policy/curriculum changes tailored to altering the SWB of our 3rd and 4th year students and therefore lower their depressive symptoms. This would allow for a more positive and less stressful medical school experience for these students. This may lead to less burnout and counterproductive behavior of these students.

Correlation between Extent of Metastatic Brain Tumor Resection and Outcomes in Patients

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INTRODUCTION

This Embark project seeks to better understand the correlation between the extent of tumor volume resection and patient outcomes in metastatic brain tumor surgery. With brain metastases occurring in nearly 20-40% of all cancer patients, the effect of the extent of tumor resection is still a topic of discussion within the surgical community. Our hypothesis is that a greater extent of tumor volume resection in surgical removal of brain metastases significantly increases mean patient survival, decreases neurological symptoms, and decreases local recurrence

METHODS

A retrospective review of de-identified data from pre-operation and post-operation of 150 patients will be analyzed to determine how a greater extent of tumor volume resection impacted patient outcomes. The study population will consist of former metastatic brain tumor resection surgery recipients over the age of 18 and under the age of 75. Patients who passed away due to systemic disease rather than intracranial disease will also be excluded. Through use of a 3D volumetric analysis software, the extent of tumor resection will be determined and will be compared to how the patient did after the procedure.

ANTICIPATED RESULTS

Results are expected to show a positive correlation between extent of tumor volume resection and patient outcomes, such that a greater volume of resection yields a greater mean survival and decrease in symptoms.

CONCLUSION

With the rising rates of cancer and the limited available literature, understanding the effects of a greater tumor resection volume and patient outcomes can profoundly impact the hundreds of thousands of patients diagnosed each year. This data can be utilized to optimize surgeries and increase mean survival.

Motivational Factors of Adolescent Athletes Returning to Sport Post Injury

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INTRODUCTION

Sport specialization is defined as year-round training in a single sport often to the exclusion of other athletic endeavors. In recent years, there has been a significant increase in the number of athletes who engage in early sport specialization, and while there are some advantages, there are also associated risks relating to both physical injury and emotional stress. These risks are often related to the unrealistic expectations placed upon these young athletes. The goal of this study is to identify what motivates this population of adolescent athletes to return to their sport following a specific season-ending injury.

METHODS

Adolescent athletes who have torn their Anterior Cruciate Ligament (ACL) and specialize in a sport will be surveyed regarding their experience in returning to their sport post injury. Participants will rank influences such as parental or coaching pressure, desire to progress in competition level, personal drive, and other similar influences. Participants will indicate their current level of competition, highest level of competition they intend to play, and if any of the above factors influenced premature return to sport. T-tests and Chi-square tests will be used to analyze the collected results.

ANTICIPATED RESULTS

Older participants, who rank playing at a higher level of competition as their motivation, are expected to have a higher correlation with returning to their sport following their injury. Younger participants are expected to have parental and coaching influences ranked higher than others in relation to their return to sport.

CONCLUSION

There are strong psychosocial factors related to return to play in athletes following major season-ending injuries such as ACL tears. The results of this study will hopefully be used to aid parents, coaches, doctors, and other health care providers in how to better counsel this population and prepare them for the expectations associated with return to sport – as well as life.

Opiate Cross-Reactivity in Patients with an Existing Chart Label of a Specific Opiate Allergy

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INTRODUCTION

After the HITECH Act of 2009, the consolidation of patient data into electronic health records (EHR) has led to implementation of inaccurate systems that have created a high volume of low-value drug allergy alerts, with a particular rise in opiate drug allergy alerts. These inaccurate alerts contribute to physician alert overrides, frustration, and loss of efficiency at point of care. Due to these challenges, in May 2013, a decision was made to suppress opioid analgesic drug class allergy alerts for the Legacy Beaumont Hospital system. This first goal of this evidence-based study is to determine whether or not opioid analgesic drug class allergy alerts are needed when a physician prescribes potentially cross-reactive opiates. If an alert is needed, the secondary goal of this study will be to create a simplified methodology on how to alert physicians of suspected opiate cross-reactive allergies at the point of care.

METHODS

The study is a retrospective analysis of 500 randomly selected individual existing electronic medical records found within the Legacy Beaumont Hospital system. The time frame of the data pulled for analysis will be from January 2015 through December 2015, which is after the decision to stop opiate cross-reactive drug allergy alerts. An algorithm will be used to classify whether or not a patient with a known opioid allergy had an adverse reaction when given an alternative class of opioid. A paired t-test will be used to analyze the data.

ANTICIPATED RESULTS

We expect to see a correlation between the lack of alerts and the number of adverse reactions to administration of an alternate class of opioid medication.

CONCLUSION

The results are expected to cause a change in the current policy with which drug alert notifications are currently populated for patients with opioid allergies.

Project STAER

Sleep, Trauma, Attention, & Emotional Regulation

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INTRODUCTION

The goal of the current study is to investigate whether past trauma has a direct impact on sleep quality, attention, and emotional regulation within a population of women who have experienced self-described trauma. Furthermore, the current research may provide information about how individual changes in emotion, memory, and attention in response to trauma, could potentially have an influence on individual responses to therapy.

METHODS

A population of 100 women between the ages of 18-40 will be recruited to participate in a series of assessments. Participants will be divided into two groups: those currently experiencing symptoms of PTSD (experimental group) and those not presently experiencing symptoms of PTSD, but who have experienced trauma (control group). The tasks will include a pretest survey to assess presenting PTSD symptoms, the ActiWatch sleep monitor to assess sleep quality, the Psychomotor Vigilance Test (PVT) to assess attention, and a questionnaire packet assessing emotional regulation.

ANTICIPATED RESULTS

Compared to the control group, the treatment group is expected to exhibit abnormal sleep, difficulties in emotional regulation, and diminished attentional abilities. Finally, it is predicted that the disturbances in sleep quality exhibited by the treatment group will show a direct positive correlation with disturbances in attentional abilities and emotional regulation.

CONCLUSION

The results are expected to support the hypothesis that trauma has a direct adverse impact on sleep quality, attentional capabilities, and emotional regulation in a population of women who have experienced trauma.

Chronic Kidney Disease: Its Impact on Total Joint Arthroplasty Interventions

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INTRODUCTION

In the United States, chronic kidney disease (CKD) affects roughly 11% of the population or 19.2 million people. As the prevalence of CKD continues to rise it will be necessary to consider its association with procedures such as total joint arthroplasty (TJA) and address how CKD may affect post-operative TJA clinical and economic outcomes. By conducting a retrospective study using a nationally representative sample, it may be possible to predict outcomes for CKD patients undergoing TJA and help develop new protocols that ensure the highest level of patient safety.

METHODS

This study utilized de-identified data from the National Inpatient Sample (NIS) database from 2006-2011. The NIS uses ICD-9-CM codes to identify patients who are aged 45 and older with osteoarthritis who have undergone TJA. The data was further stratified to CKD and non-CKD patients while matching for gender and additional co-morbidities using the modified Elixhauser Comorbidity Index. Postoperative and economic outcomes were measured for each matched cohort. Descriptive statistics will be used to analyze the collected results. Univariate analysis using t-tests and chi-squared statistics will be conducted for continuous and categorical data, respectively. Odds ratios with respective confidence intervals will be calculated to assess the association of CKD and post-TJA complications.

ANTICIPATED RESULTS

It is expected that those TJA patients with CKD will have worse clinical outcomes than those patients without CKD while also enduring more economic burdens. Some variables that we will look at are postoperative complications including deep vein thrombosis, mortality, postoperative anemia, and cardiac concerns while also assessing postoperative economic outcomes including length of stay (LOS [days]), amount charged (\$USD), and discharge disposition (home, subacute nursing facility [SNF], or home-health).

CONCLUSION

The results are expected to help orthopedic surgeons identify the risks that may be present for patients with CKD undergoing TJA in the future and help achieve the highest level of patient safety.

Effects of Adductor Canal Nerve Blockade in Total Knee Arthroplasty

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INTRODUCTION

Studies have shown nerve blocks are effective in reducing patient pain following surgery. Historically, general or spinal anesthesia alone or in combination with a femoral nerve block has been used in knee arthroplasty procedures. The femoral nerve provides sensory and motor innervation to the anterior thigh, whereas the saphenous nerve provides sensory innervation to the medial area of the knee and leg. Use of local anesthetic to block the saphenous nerve in an adductor canal nerve block provides analgesic relief without a great reduction in lower limb motor control. This research will add to the current literature of the utilization of the adductor canal nerve block in patients undergoing knee surgery.

METHODS

Information will be collected from electronic medical records within the Beaumont Epic system. Charts of 112 patients who had knee arthroplasty from October 2016 to December 2016 will be analyzed. The effectiveness of the nerve block will be evaluated by using sum of pain intensity differences and patient opioid use. Sum of pain intensity differences is measured by combining relief magnitude and duration in a single score. Total consumed opioid usage will be measured by oral morphine equivalent conversion. Patients will be grouped into two groups: those who received the nerve block and those who did not. These groups will be compared for significance utilizing a t-test, multivariable linear regression, and analysis of variance.

ANTICIPATED RESULTS

We expect the group receiving the adductor canal nerve block will experience decreased sum of pain intensity differences score and amount of opioid consumed.

CONCLUSION

This research will provide additional reinforcement that using this nerve block will improve the patient's recovery process. Also, results from this study will support the efficacy of this nerve blockade compared to general or spinal anesthesia alone and an effective alternative to the femoral nerve blockade.

Incorporation of Enhanced Recovery After Surgery Program (ERAS) & Impact on Surgical Outcomes

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INTRODUCTION

The ERAS program is used by surgeons to improve outcomes of surgeries and is currently used at Beaumont in the colorectal department. The goal is to reduce risk of infections, specifically surgical site infections. The program also aims to reduce readmission rate as well as length of stay at the hospital following a surgical procedure. The primary goal of this study is to identify the effects of incorporating ERAS and comparing patients pre-ERAS and post-ERAS.

METHODS

500 patients from Beaumont Hospital in Royal Oak, MI before ERAS was incorporated in the hospital were compared with 500 patients post-ERAS era undergoing elective abdominal colorectal surgery to evaluate the effectiveness of ERAS.

ANTICIPATED RESULTS

Compared with the pre-ERAS era patients, post-ERAS patients are expected to have reduced risk of surgical site infections. Post-ERAS patients are also expected to have shorter lengths of stay following surgeries as well as fewer readmissions.

CONCLUSION

The results are expected to support the hypothesis that incorporating the ERAS program into colorectal surgeries will improve the outcomes following surgeries and reduce the surgical site infections. It is also expected to speed the recovery of patients. This is a pilot study used to inform future research and could be used when considering implementation of ERAS into other surgical specialties.

Single Center Outcomes of Umbilical Hernia Repair Using Gore BIO-A Mesh

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INTRODUCTION

Biologic mesh offers an alternative to prosthetic materials for reinforcement and repair of hernias. Outcomes of umbilical hernia repair (UHR) using Gore BIO-A Mesh have not yet been described. This study aims to evaluate a single center's experience with wound complications, re-intervention, and recurrence in patients undergoing UHR using BIO-A.

METHODS

All patients underwent primary UHR using BIO-A mesh at a single institution from 2010 to 2015 (n=52). Patient demographics, comorbidities, surgical details, early and late post-operative outcomes, re-intervention, recurrence, and long-term follow-up were recorded using retrospective chart review. Descriptive statistics were derived using these variables. Two-sample t-tests were used to evaluate comorbidities in patients who experienced hernia recurrence compared to those who did not.

RESULTS

Fifty-two patients with a median age of 51 years underwent a primary UHR using BIO-A mesh with a median follow-up of 54 months. All patients had clean wounds and none had prior ventral hernia. One patient (2%) had wound complications that required re-intervention in the follow-up period. Two patients (4%) had wound complications that did not require any intervention. Six patients (11.5%) experienced hernia recurrence, with a median of 15 months to recurrence.

CONCLUSION

Further studies are recommended to assess BIO-A'S utility as an adjunct to definitive repair as the search for ideal biologic mesh continues.

A Survey of Oakland University Students' Willingness to Submit Their DNA for Medical Research

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INTRODUCTION

The concepts of personalized medicine and pharmacogenomics have been firmly established and hold the promise to better healthcare delivery while reducing healthcare cost. Numerous studies have assessed students' attitude towards genetic testing, but few studies have investigated the willingness of students to submit their DNA for research. The aims of this study were (1) to assess Oakland University (OU) students' willingness to submit their DNA to OU for medical research and (2) to evaluate factors that may influence their decision.

METHODS

A cross-sectional study was conducted among OU students using an online self-administered questionnaire distributed through Qualtrics survey software to collect data. In addition to the respondents' biographical data section, the questionnaire assessed the respondents' general knowledge and attitude about DNA sequencing and personalized medicine, and their willingness to submit their DNA as well as factors influencing their decision.

RESULTS

From the 653 questionnaires completed, 91.6% of respondents were between 18 to 30 years and 69.5% identified as females. A total of 71.0% respondents were willing to submit their DNA samples to direct-to-consumer (DTC) genotyping companies and 72.5% of respondents were willing to consent to DTC to use their DNA for medical research. While 64.9% would be concerned about their genetic privacy, 61.8% would not be concerned about the possibility of discrimination based on their genetic profile. Lastly, the majority of respondents (81.2%) were willing to submit their DNA to OU to sequence for medical research purposes.

CONCLUSION

Preliminary data analysis showed that OU student respondents were willing to submit their DNA to sequence for medical research despite concerns about their genetic privacy. Based on these initial results, it is hoped that this study will start a dialogue about research universities in the U.S. using their capacity to house and sequence their students' DNA for societal benefits and advancement of the healthcare system.

Effect of Brain Tumor Malignancy on Patient Satisfaction During Hospitalization

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INTRODUCTION

Since the implementation of the Affordable Care Act, healthcare system compensation models have become more dependent on patient satisfaction surveys. Many factors can influence patient experience during hospitalization. Certain circumstances cannot be controlled by healthcare providers, and yet have the potential to influence the patient experience. In this study, Press-Ganey satisfaction surveys from patients who underwent tumor resections will be analyzed to evaluate potential correlation between patient satisfaction and brain tumor malignancy.

METHODS

Press-Ganey satisfaction surveys will be chosen from 300 patients in the Beaumont Health System who underwent brain tumor resection over the past ten years in a random fashion. Brain tumor diagnoses will be categorized as malignant or non-malignant based on the 2016 World Health Organization's Classification of Tumors of the Central Nervous System. Correlation between patient satisfaction and brain tumor malignancy will be evaluated for statistical significance.

ANTICIPATED RESULTS

We expect to find a statistically significant correlation between increased brain tumor malignancy and reduced patient satisfaction during hospitalization pertaining to brain tumor resection. Additionally, it is hypothesized that there will be a statistically significant correlation between elective brain tumor resection and improved Press-Ganey satisfaction scores (in comparison to emergent surgical resection).

CONCLUSION

The results are expected to support the hypothesis that brain tumor malignancy as well as emergency of brain tumor resection are influential factors in determining patient experience during hospitalization.

Predictive Maternal and Intrapartum Factors of Transfusion during the Intrapartum and Postpartum Periods

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INTRODUCTION

The most significant cause of maternal death worldwide is severe postpartum bleeding and, unfortunately, rates are increasing. Treatment of severe postpartum bleeding commonly includes the timely transfusion of type-specific blood products. Without sufficient time to type and crossmatch a patient's blood, transfusion carries an increased risk of adverse outcomes. Studies suggest that identification of known risk factors prior to delivery may increase staff and patient preparedness and improve outcomes. The primary goal of this study is to determine predictive maternal and intrapartum risk factors of transfusion during the intrapartum and postpartum periods. A secondary goal is to determine the associated consequences of transfusion on maternal and fetal outcomes.

METHODS

A retrospective review of mother-baby charts will be evaluated for continuous risk factors of transfusion using an analysis of variance reported using odds ratios. Categorical maternal and intrapartum risk factors will be evaluated using a Pearson's Chi-Square analysis and reported using odds ratios. A descriptive analysis will be used to look at associated maternal and fetal outcomes. Associated consequences between those with and without transfusions will be compared using a logistic regression analysis with results displayed in terms of odds ratios.

ANTICIPATED RESULTS

Compared to the control group, the transfusion group is expected to have one or more predictive maternal or intrapartum risk factors and experience more negative maternal and fetal outcomes.

CONCLUSION

The results are expected to provide predictive risk factors for transfusion that may be used to better calculate a patient's risk. This may provide positive effects for the patient and care team's level of preparedness and ability to predict maternal and fetal outcomes.

APM Predictors of Success

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INTRODUCTION

Each year, first year medical students at Oakland University William Beaumont School of Medicine (OUWB) participate in the Art and Practice of Medicine (APM) Class. Students are divided into four groups (Red, Blue, Yellow, Green) and are scheduled to attend APM in these groups. The primary goal of this study is to explore whether there are differences in the scores for the first two years' worth of Objective Structured Clinical Exams (OSCE) due to student demographics. Student gender, age, prior patient experience, and sexual identity will be analyzed within each class of medical students (class of 2019 and class of 2020) as well as sub-analyzed within each color group to see if these demographics have an impact on OSCE performance.

METHODS

Up to 250 first-year medical students from OUWB are divided into groups (blue, red, green, and yellow) for the APM course. Information from each group was collected including performance on the first two years' worth of OSCE scores and self-reported demographics. The groups will be separated and the data statistically analyzed via a t-test.

ANTICIPATED RESULTS

We anticipate differences in scoring between genders, particularly when compared between the two portions of the OSCE (interview and physical exam). We also anticipate a difference in scores between students who have had prior patient experiences than those without. We may or may not see a difference of scores across age and sexual identity.

CONCLUSION

The results are expected to support more strategic student pairing for APM as well as identify independent predictors of success for the course.

Perception of the Chaldean Population Towards Whole Body Donation

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INTRODUCTION

Chaldeans represent a growing population in southeast Michigan who will expect more healthcare professionals who understand them and their culture. The aim of this project is to determine the knowledge, attitude, and perception of the Chaldean population towards whole body donation, with the hope of making recommendations to improve perceptions on this issue among this group.

METHODS

A survey has been created to collect a combination of quantitative and qualitative information, including an evaluation of the population's understanding of the body donation process and willingness to donate. The target population will be sampled at 2 sites: St. George Chaldean Catholic Church and at a Chaldean-run outpatient clinic, which allows for sampling different demographics within the population. 100 surveys will be collected. Data will then be analyzed using demographic comparisons. Descriptive statistics will be provided as Mean \pm SD or N (%). The analysis will be done using SAS/STAT software.

ANTICIPATED RESULTS

The anticipated results are that there is a statistically significant portion of the population who do not understand the process of body donation, who believe that their religion prohibits them from donating, and/or are simply unwilling to donate. A statistically significant portion of the population is also expected to answer with responses that indicate a willingness to learn more about the subject.

CONCLUSION

The results are expected to show that the Chaldean population is unwilling to participate in whole body donation programs. Much of the negative perception could be attributed to a lack of information on the subject matter, indicating a need to further educate the population on the matter.

Gender and Use of Self-Diminishing Language in Medical Student Narrative Self-Assessment

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INTRODUCTION

Self-assessment is a professional skill crucial for individuals to succeed as physicians and life-long learners. Recently the Liaison Committee for Medical Education (LCME) has encouraged medical schools to increase opportunities for students to engage in self-assessment. There is a need to know how students tend to engage in self-assessment and how social factors influence this activity. There has been limited research on medical student narrative self-assessments. The director of the Medical Humanities and Clinical Bioethics course at Oakland University William Beaumont School of Medicine (OUWB) incorporated more opportunities for formal self-assessment in the course. In light of the anecdotal evidence of the gendered nature of these responses, researchers will compare student's gender identity and themes in the self-reports.

METHODS

As part of the Medical Humanities and Clinical Bioethics course students recorded short weekly video responses to ethical questions then evaluated their performance with a narrative self-assessment. This study used a grounded theory-like open coding technique to analyze narrative self-assessments to compare the ratio of critical feedback to positive feedback among genders. While remaining open to unexpected themes, researchers will specifically explore the use of self-diminishing language across genders. Researchers also analyzed the ratio of feedback related to aspects of performance compared to introspective feedback. The qualitative portion employed grounded theory visualization. Basic parametric statistics (difference between portions, ANOVA, T-test, and F-distribution) and a bootstrap distribution were used.

ANTICIPATED RESULTS

Based on anecdotal reviews researchers expect to discover an increased ratio of critical feedback to positive feedback and an increased use of self-diminishing language in students who identify as women.

CONCLUSION

This study will help inform the current teaching practices and may help guide instructors on how to make self-assessment more effective. It may identify weaknesses in self-assessment that can be specifically addressed as well as any unexpected differences in the experience of self-assessment among students based on their gender.

Analysis into 4th Year Medical Student Attitudes and Clinical Decision-Making in Treating Victims of Sexual Assault

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INTRODUCTION

Sexual assault is highly prevalent in the United States and often results in physical, mental, and emotional injury to victims. Thus, it is vitally important that medical students, residents, and physicians are competent in the treatment and care of victims of sexual assault. There is a gap in the current research regarding the education of medical students in this area. Therefore, the aim of this study is to measure the attitudes and clinical skills that 4th year medical students possess regarding the care and treatment of victims of sexual assault.

METHODS

An anonymous Qualtrics survey will be distributed to 200 participants via email. Participants in this study will be 4th year medical students from various United States medical schools. Participants will be presented with case scenarios of patients who have experienced a recent sexual assault. Questions will be asked regarding participants' attitudes toward and plans for the care and treatment of each patient. Data will be analyzed using both within- and between-subjects designs to determine if participants vary in their responses to sexual assaults of differing severity as well as if participant characteristics differentiate responses to the same vignette.

ANTICIPATED RESULTS

The expected timeframe of this study will be between April and May of 2018 with statistical analysis completed by the following August. It is expected that 4th year medical students will not consistently know how to demonstrate the proper treatment and care of a victim of sexual assault.

CONCLUSION

Upon completion of this study, conclusions will be made regarding the attitudes, knowledge, and clinical awareness of participants. Study results will ideally demonstrate any shortcomings in medical education and provide a starting point for areas in which improvement could be made. Long term, this study aims to improve medical education in the care and treatment of victims of sexual assault.

Human Papilloma Virus Vaccine: Assessing Knowledge, Attitudes, and Readiness of Oakland University Students for Future Policy Implications

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INTRODUCTION

The CDC states that nearly all men and women will be infected with Human Papilloma Virus (HPV) in their lifetime. HPV is related to oropharyngeal, anal, cervical, vaginal, vulvar, and penile cancers. Given its association with cancers in both genders, vaccination is recommended for both men and women. This study aims to examine the knowledge, attitudes, and readiness of Oakland University students with regards to HPV infection and vaccination, with a focus on male and LGBTQ (lesbian, gay, bisexual, transgender, queer) students. The goal of this study is to determine how knowledgeable Oakland University students are about HPV, their attitude towards it, and their willingness to take the vaccine.

METHODS

2000 students selected randomly across all colleges of Oakland University, excluding OUWB School of Medicine, will be sent a cross-sectional online survey. Data on various parameters will be analyzed with measurable indicators such as: general non-identifying information, knowledge of HPV vaccine, attitudes towards vaccination, and readiness for receiving HPV vaccine. These indicators will be analyzed in terms of age, sexual preference, university major, and cultural background. The collected data will be analyzed using SPSS.

ANTICIPATED RESULTS

This study expects to find a discrepancy between female, male, and LGBTQ-identifying students, with female students having the most awareness of the HPV vaccine. The previous study found a discrepancy between female students who were aware of the vaccine and those who were actually vaccinated. There was also a large discrepancy between female students who agreed there is a high risk for HPV infection and those who believe they themselves are susceptible. The proposed study will assess these correlations also in male and LGBTQ students, and anticipates similar results to those found in female students.

CONCLUSION

The results are expected to support the hypothesis that Oakland University students are generally knowledgeable with positive attitudes and favourable intentions towards HPV vaccination.

Does Double Coverage Double Cover: Sub-analysis by Infection Location

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INTRODUCTION

Gram-negative bacteria readily develop resistance to multiple and sometimes all available antibiotics. This has led to an initiative across the United States, including at Beaumont Health, to more appropriately use antibiotics and reduce resistance rates. Gram-negative treatment often adds a second-line antibiotic to help cover potential resistance to the first-line antibiotic. This study analyzes the effectiveness of second-line antibiotics when considering the location of the infection within the patient.

METHODS

A retrospective analysis of antibiotic resistance in all Gram-negative clinical isolates from Beaumont Royal Oak's Clinical Microbiology Laboratories from October 1st, 2011 through December 31st, 2017 was performed. 248,658 isolates were identified, and those with missing data, duplicates, or not relevant to the study were removed leaving 170,071 isolates for analysis. Gram-negative antibiotic resistance was tallied for every isolate and a data subset was generated based on the organ system infected (urinary tract, respiratory, and blood).

RESULTS

Urine cultures are the most commonly received cultures in the microbiology lab, 83% of our dataset, and E. coli is the most common pathogen isolated in urine, 62% of urine isolates. Blood cultures represent 3% and respiratory cultures are 5% of our dataset. Resistance to ciprofloxacin among the three sources was essentially equal. Ciprofloxacin resistance was higher in carbapenem non-susceptible isolates from urine and respiratory cultures than in blood; 72%, 68%, and 58% respectively.

CONCLUSION

Ciprofloxacin as a second-line agent is not supported by resistance data irrespective of the location of the infection. Despite the high use of ciprofloxacin to treat urinary tract infections there was no higher resistance noted in urine. Aminoglycosides, particularly amikacin remain much stronger choices as a second-line antibiotic irrespective of the location of the infection. However, it is important to note that clinically we would not use aminoglycosides as monotherapy for lung infections.

The Use of Indocyanine Green Fluorescent Mapping for the Detection of Sentinel Lymph Nodes in Endometrial and Cervical Cancers

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INTRODUCTION

Staging for endometrial and cervical cancer is a common practice, based on surgical findings and pathology, to determine the appropriate course of treatment. Currently, full node dissections are performed to determine the extent of metastases in regional lymph nodes. However, complete surgical lymph node dissection can convey risks both intra and post operatively, strengthening the need to develop new techniques for staging. Sentinel lymph node (SLN) mapping, tracing the first lymph nodes draining from a suspected malignancy, is standard of care for several forms of solid tumors including breast cancer, melanoma, and vulvar cancers. Furthermore, near-infrared (NIR) fluorescence imaging with indocyanine green (ICG) has been described for SLN mapping in various malignancies. Thus, the primary purpose of this study is to evaluate the detection rate of SLNs, for endometrial and cervical malignancies, using ICG and NIR fluorescence imaging with the robotic platform at Royal Oak, Troy, and Grosse Pointe Beaumont.

METHODS

A pilot of 40 patients who have endometrial and cervical cancer, and who are eligible for minimally invasive surgery, will be asked to participate in this study over the course of a year. The protocol will consist of identifying the SLN, recording its location, and analyzing the pathology separate from non SLN. Data will be collected from the patient record after the procedure has occurred to determine the utility of fluorescent mapping using ICG.

ANTICIPATED RESULTS

It is anticipated that using ICG and NIR fluorescence imaging with the robotic platform will produce high detection rates of SLN in endometrial and cervical cancer.

CONCLUSION

Utilizing ICG for the detection of SLN may be a more efficient and safer option for staging of endometrial and cervical cancers. Ultimately, SLN detection has the potential to eliminate the need for full lymph node dissection, which carries both intra-operative and post-operative risks.

The Influences of Medically Related Educational Outreach on the Meal Choice of High School Students

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INTRODUCTION

Healthy meal behavior in America's youth declines with age, starting in elementary school. Studies have shown unhealthy meal choices by grade school students, predominantly by high school students on average. The primary objective of this study is to determine a potential correlation between medically related educational exposure for high school students and their immediate meal choice. The secondary objective is to determine whether there is alignment between the students' reported meal choices immediately following the educational session and observed meal choices. The tertiary objective is to determine whether participation in the educational session improves knowledge about nutrition and anatomy.

METHODS

High school students (N=60) from Chandler Park Academy (Detroit, MI) will visit the Oakland University William Beaumont School of Medicine. Students will receive an initial survey that asks what they want to eat for lunch and assesses their knowledge of anatomy and nutrition. The students will participate in an educational session involving gross human anatomical specimens, which compare diseased and relatively healthy organs related to nutrition. The same survey will be administered post-session, including indicating lunch choice once again. Lunch will be provided and actual meal choice will be observed. Data from pre and post surveys will be used to compare the change in knowledge related to the subjects taught (two-tailed independent T test) and the proportion of students that decided on a different meal choice. Agreement between the reported and observed meal choice will be determined (Fleiss' Kappa).

ANTICIPATED RESULTS

It is expected that following the session, students will score significantly higher on the post test, and indicate and select a healthier lunch as compared to the initial surveys.

CONCLUSION

The outcomes will determine whether medically related educational sessions for high school students will improve their short-term meal choices and knowledge of nutrition and anatomy.

Quality of Life Assessment of Gynecologic Cancer Patients at William Beaumont Health System

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INTRODUCTION

The aim of this study is to prospectively and longitudinally assess the quality of life (QoL) of gynecologic cancer patients at Beaumont Health System. QoL is defined as an individual's physical, functional, emotional and social well-being and how it is impacted by a medical condition and its treatment. It is essential to pursue not only curative treatment, but to consider treatment morbidity and QoL implications.

METHODS

This pilot study will assess changes in QoL scores longitudinally in about fifty gynecologic cancer patients at Beaumont from October, 2017 to October, 2019. A validated EORTC QLQ-C30 questionnaire will be administered to patients undergoing treatment at initial enrollment and subsequently, every three months for a year. Survivors or those in remission will be assessed at initial enrollment and at one year. Key variables of interest gathered from the Electronic Medical Record (EMR) (i.e. treatment, stage, surgery complications) and QoL scores will be collated and used to identify the factors that impact the QoL scores of these patients.

ANTICIPATED RESULTS

We anticipate that the QoL scores of gynecologic cancer patients will be low during treatment and expected to rise when treatment is concluded. In addition, it is expected that certain treatments like radiation will impact patients more negatively.

CONCLUSION

The results will give the gynecologic oncology team a better understanding of their patients' unique QoL issues. By identifying factors that impact QoL, we hope this will set a specific framework for which patient-centered interventions can arise and improve care for Beaumont's gynecologic cancer patients.

Anterolateral Ligament Reconstruction Practice Patterns Across the United States

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INTRODUCTION

Anterior cruciate ligament (ACL) reconstruction has been shown to have positive outcomes. However, some patients who undergo the procedure still experience instability of the knee joint and are unable to return to their normal level of activity. The anterolateral ligament (ALL) has been reported to add translational and rotational stability to the knee joint in conjunction with the ACL. The significance of the ALL has been rediscovered through recent studies that demonstrate the high frequency of ALL injuries occurring concurrently with ACL injuries. Currently, more attention is dedicated to the once abandoned lateral extra-articular tenodesis procedure as well as the development of ALL reconstruction. The purpose of this study was to survey orthopedic surgeons to determine the current state of practice with regards to ALL reconstruction. Our hypothesis is that the majority of surgeons surveyed will not perform ALL reconstruction frequently in their practice.

METHODS

137 orthopedic surgeons nationwide were surveyed through an online survey. A 7-question survey assessed surgeon experience, indications, technique, graft choice, and post-operative rehabilitation when performing ALL reconstructions.

RESULTS

Surveys were completed by 119 surgeons in the United States, a response rate of 86.86%. Of those that responded, 37.9% perform ALL reconstruction/lateral extra articular tenodesis in conjunction with ACL reconstruction. Grade III pivot shift and revision ACL reconstruction were the most common indications for ALL reconstruction. 60.4% use the “anatomic” ALL reconstruction with hamstring method for this procedure. 60.92% of responders reported that they perform ALL reconstruction in less than 10% of ACL reconstruction surgeries. 87.5% stated that post-operative rehabilitation is the same if an ALL reconstruction or LT is performed with ACL reconstruction.

CONCLUSIONS

Despite the recent surge in literature surrounding ALL reconstruction, the majority of orthopedic surgeons surveyed do not perform ALL reconstruction or lateral extra articular tenodesis with ACL reconstruction. Most surgeons perform ALL reconstruction on patients with a grade III pivot shift or on patients undergoing revision ACL reconstruction, however we did not find a consensus regarding the indications or technique for ALL reconstruction. The majority of surgeons do not change their post-operative protocol if an ALL reconstruction is performed.

Assessment of Patient Satisfaction after Mohs Micrographic Surgery

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INTRODUCTION

Skin cancer is the most common form of cancer in the United States, reporting over 5 million cases per year. Mohs micrographic surgery (MMS), a procedure that involves removal of small increments of cancerous tissue while preserving the surrounding healthy tissue, is the primary treatment for skin malignancies. Following the procedure, many repair techniques are available to close the defect to restore functional capacities and enhance cosmetic outcomes. The PriMatrix graft is a novel dermal scaffold that has been shown to decrease scar and increase healing in many case studies involving partial and full thickness wounds. The primary goal of this project is to assess patient satisfactions of those who received the PriMatrix graft compared to those who elected to heal naturally by secondary intention healing (SIH) following MMS. Secondly, we want to compare patient satisfaction with physician satisfaction of wound outcome.

METHODS

The study will run from April 2018 to April 2019, we are expecting around 100 patients per cohort. This project involves retrospective chart review and prospective assessment of patient satisfaction through a survey. The target populations are patients who elected to heal by SIH and those who received the PriMatrix dermal scaffold. Participants will complete the satisfaction survey at their 6-8 weeks post-operative follow-up visit. The main surgeon will also complete his assessment of the wound at this time.

ANTICIPATED RESULTS

We anticipate that wounds healed with the PriMatrix scaffold will receive higher satisfaction ratings both cosmetically and functionally as compared to those healed by secondary intention. We also anticipate that patients and physicians will assess the wounds similarly.

CONCLUSION

The ideal wound closure maximizes both cosmetic and functional outcomes. By gaining a better understanding of patient satisfaction with this novel dermal scaffold, we can provide surgeons with another viable non-surgical option for treating Mohs defects.

Usefulness of the Beaumont Health Ethics Consultation Service to Pediatricians

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INTRODUCTION

A pediatrician may be occasionally involved in conflicts between their fiduciary duty to act in the child's best interest and their desire to respect parental decision-making. Specialists, such as pediatric oncologists and neonatologists, may additionally face difficult ethical decisions about end-of-life care. The Beaumont Health System offers clinicians the Ethics Consultation Service as a resource to deal with these conflicts; however, studies suggest that this service is rarely used by pediatricians. The primary goal of this study is to determine why the Ethics Consultation Service is not used by pediatricians employed by Beaumont Health System. A secondary goal is to determine how the Ethics Consultation Service can be improved to better meet the needs of Beaumont Health's pediatricians.

METHODS

111 pediatricians employed by Beaumont Health were emailed an online survey hosted by Qualtrics. The 31 survey questions were grouped into four general sections: Demographics, Experiences with Ethics Consultation, Judgements About Various Forms of Ethics Consultations, and Forward-Looking Considerations. To solicit written feedback about the Ethics Consultation Service, six of the 31 survey questions were open-ended and allowed free text entry. Participants were evaluated for their use of the Ethics Consultation Service as well as their feedback on how the service could be improved. A reminder email to complete the survey was sent one time. The data sets from the Qualtrics online survey platform will be quantitatively analyzed using standard parametric analyses such as analysis of variance (ANOVA) and t-tests. Responses to open-ended qualitative responses will be narratively coded using coding techniques similar to Grounded Theory that allow key concepts to emerge from the data.

ANTICIPATED RESULTS

The survey responses will be partitioned into two cohorts, general pediatricians and pediatric specialists. It is anticipated that both cohorts will have received very little graduate training in clinical ethics. Medical school coursework, ethics conferences, and self-study are expected to be the most commonly reported sources of knowledge about managing ethical conflict as a clinician. Regarding low usage of the Ethics Consultation Service by pediatricians, multiple responses are expected: lack of information about the service, lack of training on how to use the service, and lack of existing work relationships with members of the service.

CONCLUSION

The results are expected to support the hypothesis that providing more personalized information about the Ethics Consultation Service to Beaumont Health pediatric specialists will encourage greater usage of the service and may confer benefits to pediatricians in the Beaumont Health System.

Assessing Propofol Sedation Outcomes and Safety in Pediatric Patients

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INTRODUCTION

While there is evidence supporting the safety of propofol use in pediatric patients outside of the operating room, no studies exist amongst patients age 3 years or younger. As a result, the Food and Drug Administration does not recommend the use of propofol in patients less than three years old. We aim to conduct a retrospective single-center study analyzing the safety of short-term propofol use as a procedural sedation in patients from this age group. The primary goals of the study are to understand the frequency and severity of adverse effects resulting from propofol administration in patients age three or younger at Beaumont Children's Hospital Pediatric Intensive Care Unit (PICU), and to identify patient variables that are linked to adverse outcomes from propofol.

METHODS

A retrospective chart review will be performed on the medical charts of patients who received deep sedation using propofol in the Beaumont Children's Hospital PICU from July 2012-July 2016. Patient data will be collected and analyzed for adverse outcomes and other key variables associated with propofol using variable correlation, t-test, and group comparisons.

ANTICIPATED RESULTS

We believe that investigating relevant procedural data from the Beaumont Children's Hospital PICU will show that using propofol outside of the operating room has a low incidence of morbidity and mortality, as defined by the number of unplanned intubations, incidents of hemodynamic instability requiring vasoactive support, and unplanned admissions.

CONCLUSION

The results are expected to support the hypothesis that there is a low rate of significant adverse outcomes associated with the use of propofol in deep sedations for patients age three and younger.

Investigating the downstream target of ZMIZ1 in T-cell Acute Lymphoblastic Leukemia

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INTRODUCTION

NOTCH1 was found to be the most frequently mutated oncogene in T-cell acute lymphoblastic leukemia (T-ALL), raising hopes for first targeted therapy. However, Notch inhibitors exhibited severe toxicity because Notch also has important physiologic roles. *Zmiz1* was identified as a direct and selective cofactor of Notch1 in T Cell development and leukemia, and target genes regulated by *Zmiz1*-Notch1 interaction have been identified. The purpose of this project is to identify target genes that drive leukemic cell growth for potential therapeutic targets, to preserve physiologic roles of Notch1 and bypass the side effects of total Notch1 blockade.

METHODS

We transduced target genes into primary murine T-ALL cell line that depend on *Zmiz1*-*Notch1* interaction for proliferation, engineered to express activated *NOTCH1*, *Zmiz1*^{fl}, and *Rosa26-Cre^{ERT2}* transgene. 4-hydroxytamoxifen (OHT) induces Cre recombinase, deleting endogenous *Zmiz1* which normally results in cell death. Important target genes would sufficiently compensate for endogenous *Zmiz1* and rescue leukemic cell growth, measured with flow cytometer and compared using Prism one-way ANOVA. Because of the strong *NOTCH1* dependence of the cells, we also tested the effect of low-dose gamma secretase Notch inhibitor (GSI), to match the Notch signal seen in primary human T-ALL cells in order to create an environment more dependent on *Zmiz1*-Notch1 interaction for growth.

RESULTS

Compared to the untreated cells, low-dose treated cells showed greater rescue overall. Compared to the empty vector, treated *Zmiz1* rescue was at 98x and intracellular Notch1 (ICN1) was at 66x. Untreated rescue was at 19x and 3.1x respectively. A similar trend was observed with Wnt pathway mediators *Tcf1* and *Lef1*.

CONCLUSION

Data suggest that T-ALL cells are more dependent on *Zmiz1* to raise Notch signal and maintain cell proliferation when the intramolecular concentration of Notch1 is limiting. This supports the rationale that *Zmiz1* inhibitors would be more effective when combined with Notch1 inhibitors.

Impact of Enhanced Recovery After Surgery (ERAS) on outcomes following Colorectal Surgery

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INTRODUCTION

ERAS programs incorporate best practice guidelines into the perioperative process and may improve outcomes. In August 2015, Beaumont's Department of Colorectal Surgery implemented an ERAS program at the same time robotic procedures were incorporated into their curriculum. Our objective was to look at how ERAS impacted outcomes with respect to Length of Stay (LOS), and if the method of surgery impacted this outcome.

METHODS

Colorectal procedures between 6/2013 and 6/2017 (n=654) were reviewed for demographics, American Society of Anesthesiologists (ASA) score, LOS, BMI, wound class and surgery type. Operations before ERAS were labeled Pre-ERAS (n=102) and those after; Post-ERAS (n=452). ERAS participants received preoperative teaching regarding diet, exercise and best practices. Intraoperatively, ERAS patients received medications to enhance bowel motility and fluids and narcotics were guided by protocol. Postoperatively, early ambulation and food intake were encouraged for ERAS participants.

RESULTS

No differences existed between Pre and Post-ERAS groups for age, BMI, ASA or gender. Median LOS for Pre and Post-ERAS groups were 5 and 4 days, respectively ($p<0.0001$). Higher numbers of "contaminated" ($p<0.001$) and robotic cases ($p<0.001$) existed for Post-ERAS surgeries. Variables were measured against the outcome of LOS via regression analysis. LOS was significantly reduced for younger patients, males, lower ASA's and robotic procedures during the Post-ERAS period. Multivariate analysis showed higher ASA's ($p=0.003$) and female gender ($p=0.05$) independently predicted a longer LOS ($p=0.003$). ERAS independently predicted a shorter LOS ($p<0.0001$). Robotic procedures did not impact LOS when all variables were considered.

CONCLUSION

Introduction of an ERAS program is an independent predictor for reducing postoperative LOS. This improvement was not influenced by the method of surgery.

Risk of Venous Thromboembolism During Long-Term Vancomycin Therapy via Peripherally Inserted Central Catheters vs. Midline Catheters

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INTRODUCTION

Vancomycin is a commonly used antimicrobial that is indicated for treatment of a variety of infections. Peripherally-inserted central catheters (PICCs) are vascular access devices indicated for extended duration of intravenous vancomycin therapy. Midline catheters (MCs) are alternative devices that may also be used for extended duration of intravenous antibiotic therapies. Until recently, MCs were very infrequently utilized. Technological advancements in MCs along with scrutiny over complications and costs of PICCs have paved the way for midlines to assume a more significant role.

Guidelines for type of catheter indicated are based on anticipated duration of therapy, properties of the infusates, and need for central or peripheral monitoring. When the anticipated duration of vancomycin therapy is less than 30 days, either a MC or PICC may be used. Although limited research is currently available regarding midlines, there is some indication that higher thrombosis rates may exist for midline catheters, specifically with vancomycin infusions. The goal of this study is to compare venous thrombosis rates in PICCs and midlines in patients receiving intravenous vancomycin

METHODS

We will conduct a retrospective cohort study and collect data from adult patients who received vancomycin therapy, one groups of patients treated via PICCs and another of patients treated via MCs, at Beaumont Royal Oak Hospital, a 1,016-bed tertiary care facility. Data on age, sex, race/ethnicity, type of catheter and insertion location, admitting diagnosis, duration of catheterization, reason for catheter removal, and complications will be obtained; associations between patient characteristics and the occurrence of thromboembolic events will be analyzed.

ANTICIPATED RESULTS

Compared to the PICC group, the MC group is expected to exhibit lower rates of venous thromboembolism with long-term vancomycin therapy.

CONCLUSION

The results are expected to inform future clinical decisions regarding the appropriate choice of catheter modality in long-term vancomycin cases.

Academic effectiveness of medical school faculty as perceived by members of medical school faculty

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INTRODUCTION

Medical school education constitutes the effective dissemination of basic science information to the medical student so that he or she may apply the knowledge to tangible clinical applications. Perspectives of effectiveness can be observed through the lenses of both medical students and of professors. The primary goal of this study is to determine what the most valuable qualities of an effective medical school instructor are, as perceived by other medical instructors at the Oakland University William Beaumont School of Medicine (OUWB).

METHODS

The study was a single, one-time-only, cross-sectional survey that was administered to the M1 and M2 OUWB School of Medicine Basic Science faculty. Hard copy questionnaires along with an information sheet that described the nature of the project, informed the participants of the study's aims, and allowing them to refuse participation without penalty were administered personally in envelopes to the professors' offices to be picked up at a later time. The data will be analyzed using SPSS software and aggregate scores will be averaged and reported with standard deviations. Descriptive statistics will be used for analysis of open-ended responses.

ANTICIPATED RESULTS

It is anticipated that of the main attributes faculty deem important in picking and evaluating effective instructors, credentials, years taught, and proficient communication skills will be valued as the highest priorities.

CONCLUSION

The results are expected to provide insight into the opinions of professors on what qualities constitute an effective medical school basic science instructor. This study will provide important feedback for improving classroom teaching and could be extended to medical school curriculums nationally.

Use of Procalcitonin to Assist in Antibiotic Treatment Decisions

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INTRODUCTION

Antibiotic misuse and overuse is a growing concern worldwide. The World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), US Food and Drug Administration (FDA), and other organizations are implementing strategies to reduce unnecessary antibiotic use. With recent approval of procalcitonin (PCT) tests for lower respiratory tract infection and sepsis, many hospitals have introduced this assay to manage patients with these infections, as PCT levels are increased during bacterial infections. While many studies on PCT-guided therapy (PGT) have been conducted over the past decade, the real-world impact of PGT is less well described. To that end, this study assesses the clinical impact of a PGT strategy before and after its introduction in a non-research setting. We believe that this study is important to establish the effectiveness of PGT in reducing antibiotic use and improving patient outcomes.

METHODS

This study will collect pre-intervention data on patients who have measured PCT levels and are taking antibiotics at Beaumont Health hospitals. After implementation of a strategy to utilize PCT as a tool for determining if a bacterial infection is present and/or when to stop an antibiotic in a patient with an unidentified infection source, quantitative variables will be extracted from the EPIC database for analysis.

ANTICIPATED RESULTS

The results are expected to show that PGT alongside hospital antibiotic treatment will increase in correlation before and after antibiotic stewardship. Information found during this study will be distributed to health care officials through articles, poster presentations and other means. These outcomes hope to guide effective future use of PGT alongside hospital antibiotic treatment.

CONCLUSION

The results are expected to support the hypothesis that the clinical impact of a PGT strategy before and after its introduction in a non-research setting would show an impact on the decision to continue or discontinue antibiotic usage.

Patient Related Factors in COPD Readmissions: The Influence of Socioeconomics, Psychiatric Illness, and Locality

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INTRODUCTION

Chronic obstructive pulmonary disease (COPD), a leading cause of morbidity and mortality worldwide, is a disease state defined by expiratory airflow limitations and emphysematous destruction of the lungs. In terms of COPD, comorbidities can be described as diseases that either exist independently or dependently of COPD and/or have common risk factors and pathogenic pathways. Common comorbidities include cardiovascular disease and lung cancer. Skeletal muscle dysfunction, metabolic syndromes, osteoporosis, depression, and anxiety are also frequent, underdiagnosed afflictions that are associated with poor health status and prognosis in patients with COPD. The rationale for this research is to correlate which of these factors might predispose a COPD patient to readmission. The hope is to apply these findings to screen COPD patients on their likelihood of readmission based on such predisposing factors. In particular, the goal is to understand the demographic of readmitted COPD patients within the Beaumont Healthcare system – focusing on facets of their past and current social and medical history.

METHODS

This study will be a small-scale retrospective study, and will be using patient-related data spanning 17 years (from 2000 to 2017). The data itself is derived from several different sources, namely electronic medical records and Beaumont Hospital informatics databases. Study participants will include patients with a recorded COPD diagnosis who have been re-admitted at least once within a 30-day period to the Beaumont Hospital system after their initial diagnosis. Key variables of interest, including race, ethnicity, county of residence, comorbid illnesses, and prior diagnosis of psychiatric illness, will be collected from the database. Descriptive analysis of the patient population will then be performed, with frequencies, means and standard deviations. Outcomes from the study will be used to inform the Beaumont Internal Medicine staff and admitting physicians, and results will be disseminated through manuscript for internal consumption as well as publication.

ANTICIPATED RESULTS

After accounting for similar profiles in comorbid illnesses, it is anticipated that COPD patients who reside in lower income counties, those that identify as underrepresented minorities, and those with prior diagnoses of psychiatric illness will have increased frequency of readmission within the 30-day period following their primary admission for a COPD-related exacerbation.

CONCLUSION

The results are expected to support the hypothesis that the aforementioned patient-related factors lend a hand in the likelihood that a patient with COPD be readmitted; understanding which risk factors are more prevalent may confer a benefit to practitioners in the Beaumont Health System and administrative staff alike.

Assessing Medical Residents' Cultural Competence in Managing Diabetes for Patients Observing Ramadan

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INTRODUCTION

Diabetics fasting for Ramadan are at increased risk for health complications like hypo/hyperglycemia and ketoacidosis. Therefore, proper measures taken prior to, and during, Ramadan help ensure a safe and healthy fast. While several studies exist evaluating educational materials for patients, very few are geared toward providers. This study intends to understand medical residents' knowledge and comfort in managing diabetes in patients observing Ramadan and assess whether an educational intervention can improve understanding and assist in counseling patients and delivering care.

METHODS

Internal/Family Medicine residents will complete a pre-survey aimed to assess, through multiple choice and true-false questions, baseline knowledge of Ramadan and complications associated with diabetes. 5-point Likert scale questions will assess current attitudes and confidence in managing care for fasting diabetic patients. Participants will later attend an interactive educational intervention based on guidelines from the ADA and IDF-DAR. Participants will fill out a post-survey asking the same questions as the pre-survey and also perceptions of the in-service itself. Another post-survey will be administered after 3 months. T-tests and X² group comparisons will be conducted to understand differences in responses prior to and after the intervention both within individuals and among groups.

ANTICIPATED RESULTS

Compared to pre-survey, post-survey responses are expected to demonstrate increased participant understanding of Ramadan practices, knowledge of topics related to Ramadan and diabetes, and improved comfort and confidence in managing patient care. We expect the improvements to be consistent throughout the follow-up period and that participants will respond they found the material helpful and will incorporate it into their future practice.

CONCLUSION

The results are expected to reveal that a tailored educational intervention on Ramadan and diabetes will bolster physician cultural understanding and comfort in managing care. This intervention will bring awareness to the challenges faced by the diverse patient population and subsequently help deliver culturally salient and effective care.

Retrospective Review of Revision Modular Total Hip Arthroplasty Implant Outcomes

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INTRODUCTION

As the number of total hip arthroplasties (THA) performed annually continues to rise, so does the need for revision surgery (revision modular THA), which may entail everything from debridement to removal of some parts (either partially or completely). The purpose of this study is to understand why THA implants can fail and what kind of revision surgery will produce the best outcomes, particularly concerning the retention or removal of the modular femoral stem.

METHODS

In this study, all THA explants (implants that were removed) will be identified from the Beaumont Health System database, including both explants from revision surgeries where the entire system was removed as well as explants where all components except the modular stem were removed. A retrospective chart review of each case will be conducted to collect various data elements such as patient demographics, attending surgeon, model and make of the explant. The manufacturers and models specifically being looked at are: Zimmer ZMR, Stryker Restoration, Biomet Arcos and Depuy Reclaim. The Musculoskeletal Infection Society (MSIS) criteria will be applied for a minimum two-year follow-up or until explant failure. These criteria include positive synovial fluid cultures, communicating sinus tracts, and signs of inflammation in the affected joint or in the body.

ANTICIPATED RESULTS

We anticipate that a combination of debridement, irrigation, antibiotic therapy, change of modular prosthesis components and prosthesis retention are acceptable solutions in the management of early and acute periprosthetic joint infections.

CONCLUSION

Modular tapered revision systems can be used to treat infections, prevent unnecessary bone loss, and decrease the risk of dislocation.

Quality of Life in Pediatric Patients with Neuromuscular Disorders

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INTRODUCTION

Children and young adults with neuromuscular disorders often experience immense change between the ages of 7 and 25, including muscular degeneration, transition to a wheelchair, or increased reliance on caregivers. Because these changes coincide with puberty, it is hypothesized that the patient population has increased physical, social, and psychological needs. The purpose of this study is to evaluate pediatric patients' quality of life and identify areas where their care can be improved.

METHODS

Pediatric patients with neuromuscular disorders between the ages of 7 and 25 will be recruited from Beaumont Hospital's Pediatric Neuromuscular Clinic. They will complete age-appropriate surveys about their quality of life. The survey, created specifically for children and young adults with these disorders, evaluates three domains of health: physical ability, social relationships, and psychological needs, on a five-point scale. The survey also asks patients to write how their care team can better support them. Statistical analysis will compare numerical results of the surveys to demographic information about the patients, including primary diagnosis. Written responses will be coded for common themes and ethnographically analyzed, offering quantitative and qualitative results.

ANTICIPATED RESULTS

Patients will complete the one-time survey between July 2017 and October 2018. Results are expected to identify areas of strength and weakness in the care of the patient population. As the patient population requires extensive care while experiencing the impact of degenerative disease, the results are anticipated to show a decreased quality of life. Once statistically validated, the surveys can be used as tools for the patient population to communicate their needs to their pediatric neurologist in the future.

CONCLUSION

This study will not only provide information about the study population as a whole, but will also educate pediatric neurologists on the physical, social, and psychological wellbeing of each individual patient.

Spatial Ability in Surgical Skill Acquisition: Evaluating a Spatial Representation of the Learning Curve

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INTRODUCTION

Laparoscopic surgery is becoming increasingly useful and requires advanced training. It is known that certain aptitudes such as spatial ability, the ability to mentally rotate and transform structures in 3D space, are related to how readily an individual acquires a complex surgical skill. Literature also suggests that as an individual masters a technical skill, their movements associated with performing that skill become more economical. The goal of this study is to compare efficiency in surgical skill acquisition between individuals with differing spatial ability using the peg transfer task.

METHODS

125 first- and second-year medical students from Oakland University were voluntarily recruited to participate. After completing a demographic survey, handedness inventory, Video Game Experience Survey, and Mental Rotation Test, participants were placed into two distinct groups based on spatial ability (high or low). The participants then practiced the peg transfer task until they completed the task in under 48 seconds twice consecutively, the benchmark for task proficiency. In addition to recording number of attempts and time to proficiency, the motion-tracking box trainers also recorded the movement parameters of pitch, yaw, roll, and surge, which will be used to create novel 4D learning curves. Statistical analysis will be performed using IBM SPSS Statistical Software and between groups, data will be compared using the Mann Whitney test.

ANTICIPATED RESULTS

It is predicted that the graphical 4D learning curve of high spatial ability individuals will appear steeper than that of low spatial ability individuals for the peg transfer task.

CONCLUSION

The results are expected to help identify individuals who may be successful in surgical performance and/or need additional training in order to reach proficiency. This knowledge will be valuable to surgical training programs that may wish to optimize resident education and ensure that every individual has an equal opportunity to excel.

Examining Medical Student Perceptions Towards the Homeless Population

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INTRODUCTION

Studies have suggested that many homeless patients have the perception that they are discriminated against by health care workers, and this perception gives them a strong aversion to healthcare institutions, ultimately impacting their health outcomes. A medical student's explicit bias may contribute to these perceptions. The Perception Institute defines explicit bias as "the attitudes and beliefs we have about a person or group on a conscious level." The purpose of this study is to examine medical student explicit bias towards the homeless population before and after exposure to the second-year curriculum at Oakland University William Beaumont School of Medicine.

METHODS

As part of the curriculum during the second-year winter semester, students visit five organizations that work with underserved populations that face particular health challenges or difficulties seeking out healthcare. One of these visits include a low-barrier homeless shelter, where students receive information from the shelter director, the nursing supervisor, and one or two clients that have had significant health issues. The Health Professionals' Attitudes Toward the Homeless Inventory (HPATHI) will be given as a pre- and post- survey to the second-year medical students before and after their winter semester to assess their level of bias. Their explicit bias before their exposure to the homeless population will be compared to their explicit bias after their exposure by using descriptive statistics and chi square group analysis.

ANTICIPATED RESULTS

The medical students are expected to show a decrease in explicit bias after their winter semester and exposure to the homeless at the shelter.

CONCLUSION

A decrease in Medical students' level of explicit bias will potentially increase their compassion toward the homeless and improve the care they give them during their rotations and as an attending physician. This will result in better patient care and lower mortality rates.

Do Inhaled Anesthetics Accelerate the Progression of Parkinson Disease?

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INTRODUCTION

Parkinson Disease (PD) is a chronic movement disorder characterized by loss of dopaminergic neurons within the substantia nigra of the brain. Individuals predisposed to PD may have an accelerated onset of symptoms following exposure to perioperative elements. This study hypothesizes that anesthesia alone accelerates the onset of PD-like pathology and symptoms.

METHODS

Over a 6-week period, 8-month old DJ-1 rats underwent 3, 3 hour, exposures to 1.5% isoflurane or 30% oxygen in nitrogen and were divided into 2 groups. The acute group completed the ladder rung and accelerated rotarod tests and were immediately euthanized. The non-acute group continued behavioral testing, with the addition of the novel object recognition test, and were euthanized at 12 months. Immunohistochemistry (IHC) analysis was completed using anti-tyrosine hydroxylase and anti-IBA1 assays. Dopaminergic neurons and microglial cells were quantified in the pars compacta of the substantia nigra (SNpc) and the CA1 region of the hippocampus.

RESULTS

Acute behavioral testing found no significant difference in performance between the exposed and control rats. Non-acute behavioral testing found the exposed group performing significantly better than the control in the ladder rung test ($p=0.0066$); but there was no significant difference in the accelerated rotarod or novel object recognition tests. Acute IHC showed the exposed group having a significantly lower dopaminergic neuron concentration in the SNpc ($p=0.0464$); and no significant difference in microglial cell concentration in the CA1 region. Non-acute IHC, showed no significant difference in the concentration of dopaminergic neurons in the SNpc or microglial cells in the CA1 region.

CONCLUSION

In the acute group, dopaminergic neurodegeneration within the SNpc was significantly increased for rats exposed to general anesthetics that did not rise to the level of changing motor behavior. This subtle neuropathological stress may have activated pathways that fully compensated for the acute injury over the longer term. This preliminary data suggests inhaled general anesthetics may accelerate the onset of PD.

Integrative Medicine in Pediatric & Adolescent Oncology

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INTRODUCTION

In recent years, more pediatric cancer patients and parents are seeking less conventional ways to improve their clinical outcome, quality of life, and overall well-being. Integrative medicine (IM) has been identified as a popular option that many are utilizing alongside their traditional medical care plan in an attempt to reduce the severity of disease symptoms and treatment side effects. The purpose of this research is to determine if IM is perceived to be an effective tool for those who use it, to quantify the prevalence of IM use within a single oncology practice, to identify the demographic factors associated with IM use, and to elucidate why patients and parents choose to utilize IM therapies or not.

METHODS

Approximately 45 parents of patients from a pediatric and adolescent oncology practice will complete a survey regarding their child's use of Integrative Medicine and the perception of benefit. This data will be assessed to quantify the prevalence of IM in this population group, and will be analyzed to determine if any significant trends in the demographic data exist.

ANTICIPATED RESULTS

Based on the preliminary literature review, it is anticipated that Integrative Medicine will be moderately prevalent among the general population in the Oakland County area. It is also anticipated that families of lower Socioeconomic Status (SES) will face more barriers limiting access to these services.

CONCLUSION

The results of this study will help identify which oncology patients would be the best candidates for IM services that could be offered free of charge, and connect these children and adolescents with resources that could improve their quality of life. The results will also contribute to a limited body of knowledge regarding IM use in this population.

Word Clouds as Spiritual Support for Palliative Care Patients at a Large, Suburban Hospital

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INTRODUCTION

Terminally ill patients report spiritual distress and a desire to help address their fears and find meaning in their life. These concerns are rarely addressed by the healthcare team. In previous research studies terminally ill patients were interviewed, and a word cloud was generated, highlighting important stories and themes from the patient's life. The authors concluded that the word clouds helped give meaning to life in these patients. We hope to determine if the word cloud intervention is helpful in alleviating spiritual distress and improving meaning of life in the terminally ill.

METHODS

Forty patients with a terminal diagnosis in the palliative care unit at Beaumont Hospital Royal oak who meet our eligibility criteria will be enrolled. We will assess the patient's spiritual distress through the Spiritual Distress Assessment Tool and evaluate the meaning of life with the Meaning of Life Questionnaire. After, interviews will be conducted with patients to pull out stories and themes that uncover the essence of their life. These interviews will be recorded and compiled into a word cloud and printed. Within 48 hours of printing, the word clouds will be delivered to the patient, where we will spend 15-30 minutes discussing the word cloud with them. Within 48-96 hours, we will again evaluate their spiritual distress and meaning of life, with the discussed surveys.

ANTICIPATED RESULTS

The expectation is that after interviewing patients and presenting them with their word clouds, they will express themselves as having less spiritual distress and greater understanding of their life meaning.

CONCLUSION

Helping terminally ill patients with their spiritual distress is important, and should be considered a priority in their care in the hospital. We believe that interviewing patients, and creating a word cloud could be very therapeutic as a measure to help patients cope and alleviate spiritual distress.

Post-Op Urinary Retention Incidence – Common Factors in Spine Surgery Cases

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INTRODUCTION

Post-Operative Urinary Retention (POUR) is a surgical complication where a patient cannot empty his/her bladder following surgery. This emergent condition requires readmission to prevent adverse effects from bladder over distention. Among patients undergoing spine surgery, the incidence can reach approximately 38%^[1]. This high rate of readmission has an adverse effect on patient outcome, satisfaction, and healthcare resources. The primary goal of this study is to find common factors between patients that develop urinary retention and to determine the statistical likelihood of developing urinary retention based on the presence of these common factors.

METHODS

120 surgical spine patients will have their medical charts reviewed retrospectively to look at the common factors that may contribute to urinary retention. The patient population includes all patients who developed urinary retention from Dec 2014 to June 2016. The variables being collected from the medical chart review include: patient demographics (age, sex, BMI, length of stay), medical and surgical history (surgical procedure, length of surgery, number of previous surgeries, predisposing factors such as BPH, osteoporosis, and compression fractures), hospitalization details, and concomitant medications.

ANTICIPATED RESULTS

After statistical analysis, it is expected that BMI, length of stay, and predisposing factors will be most significant in predicting urinary retention in patients undergoing spine surgery.

CONCLUSION

The results from this study are expected to support the hypothesis that there are measurable and identifiable common factors among patients developing POUR. This could potentially identify patients prior to or following surgery, and prevent expected urinary retention before it occurs. This would improve patient satisfaction as well as prevent all of the complications, health risks, and costs that come with a readmission.

Disposition Outcomes of Pediatric Patients with Moderate Traumatic Brain Injury

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INTRODUCTION

Traumatic brain injuries (TBIs) are a significant source of mortality and morbidity among pediatric patients. While mild and severe TBIs have been studied extensively, the volume of literature to guide clinical decision making for moderate grade TBIs is significantly lower. This study will compare several variables within this population to outcome at discharge. The purpose of this study is to identify predictive factors that might better guide the care of pediatric patients with moderate grade TBIs.

METHODS

This is a retrospective cohort study of pediatric patients who presented to Beaumont Health with head injuries since 2014. Among this population, only data for those with a lowest Glasgow Coma Scale (GCS) of 9-13 were analyzed. Discharge disposition was used as a means of determining positive or negative outcomes. The study evaluates whether patients were sent home with or without physical therapy follow up, discharged to rehab facilities, or died while in hospital. These data will be analyzed using multivariate regression modules to create a predictive nomogram.

RESULTS

Data collection is ongoing. However, preliminary findings indicate that the majority of transfers to a higher acuity unit or facility are unnecessary. Despite unremarkable CT scan results, pediatric TBI patients are still often transferred to a higher acuity facility.

CONCLUSION

Transferring moderate grade pediatric TBI patients to a higher acuity of care unit despite negative CT scan results in increased cost to patients, families, and healthcare systems. Increased patient volume at already high volume medical centers decreases patient satisfaction by increasing wait times and utilization of limited resources at these institutions. Finally, if the predictive value of one or more dispositional factors are established, clinicians will be better equipped to both make clinical decisions and guide patients and family members through the process of recovery from TBI.

Biological Agents and Bioactive Scaffolds for Tendon-to-Bone Healing in Anterior Cruciate Ligament Reconstruction: A Systematic Review

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INTRODUCTION

Anterior cruciate ligament (ACL) tears, one of the most common sports injuries, result in knee joint instability, impaired movement, meniscal and cartilage damage, and the subsequent development of degenerative joint conditions. The gold standard to treat ACL injuries is surgical ACL reconstruction (ACLR) and its success largely depends on the integration of the graft with the host bone. Thus, research into improving and accelerating tendon-to-bone healing after ACL reconstruction has become a major focus. The primary aim of this study is to perform a systematic review of the current preclinical and clinical evidence of using biological molecules and biomimetic scaffolds to augment tendon-bone healing following ACLR.

METHODS

Systematic searches were performed in PubMed, EMBASE, and Cochrane databases. Inclusion criteria were published clinical and animal studies of any evidence involving patients with ACL tears who received surgical intervention or animal models with ACL tears that were treated with biological agents or bioactive scaffolds to promote healing outcomes. Exclusion criteria were non-English language, reviews, editorials, or studies using plasma rich platelets, stem cells, sutures, fixation methods, artificial grafts, and anesthetics to promote ligament healing. Search terms included: anterior cruciate ligament, biological factors, wound healing. Methodological quality of clinical studies was evaluated using the Critical Appraisal Skill Programme tool, and animal studies were evaluated by a scoring system based on a published checklist of good animal studies.

ANTICIPATED RESULTS

We expect to find that there is evidence in the current literature supporting the use of biological agents and bioactive scaffolds to promote healing in ACLR.

CONCLUSION

The results are expected to provide insights to promote further developments and improvement of approaches for biological modulation of tendon-bone healing following ACLR.

Obesity as a Predictor of Renal Allograft Function

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INTRODUCTION

While being underweight in end-stage renal disease is associated with increased morbidity and mortality, obesity in these patients leads to unfavorable post-transplant outcomes. The aim of this study is to explore associations between pre-transplant obesity and early readmission (ERA), as well as renal allograft function at 12 months post-transplantation.

METHODS

Demographic data of 84 patients receiving a kidney transplantation from January to December 2014 were retrieved. The patients were categorized into non-obese and obese groups based on body mass index (BMI). ERAs, defined as any admission within 30 days after the discharge date from transplant admission, in addition to estimated glomerular filtration rates, were compared to pre-transplant obesity status.

RESULTS

Of the 83 patients analyzed, 53 were non-obese and the remaining 30 patients were obese with mean BMIs of 24.65 ± 3.08 and 34.12 ± 2.98 , respectively. Pre-transplant diabetes rates were lower in the non-obese group than in the obese group (30% vs 60%, p-value 0.015); otherwise, all baseline characteristics between non-obese and obese groups were similar. Obese patients had 33% higher odds of being readmitted when compared to non-obese patients (p-value 0.562). Among 50 non-obese and 28 obese patients with functioning renal allografts at 12 months post-transplantation, mean eGFR at 12 months was 59.4 ± 19.55 and 50.9 ± 15.81 ml/min/1.73 m², respectively. Obese patients had a decrease in eGFR of 8.56 ml/min/1.73 m² at 12 months post-transplantation compared to non-obese patients with mean difference in eGFR of -8.56 ml/min/1.73 m² (p-value 0.051). After adjusting for all variables, patients had a significant decrease in eGFR at 12 months post-transplantation by 10.10 ml/min/1.73 m² when compared to non-obese patients (mean difference in eGFR -10.10 ml/min/1.73 m² p-value 0.0495).

CONCLUSION

Pre-transplant obesity increases the risk of poorer renal allograft function. Patients who will undergo a kidney transplantation should control and maintain their weight in a normal range.

Factors influencing Michigan obstetricians' attitudes of birth doulas: A qualitative approach

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INTRODUCTION

Doulas are non-medical paraprofessionals who offer emotional and physical support to women during childbirth. Recent evidence strongly supports that the type of emotional care offered by a doula, called "continuous support," leads to reduced caesarean section rates and better birth outcomes for mothers and babies. However, there are some reports of conflict between doulas and other members of the birth care team. The attitudes of obstetricians towards doulas have not been well studied. The goal of this study is to understand what factors influence the opinions of obstetricians and how this affects their professional relationship with birth doulas and, thereby, patient care.

METHODS

The researchers will recruit board-certified obstetricians through the Michigan State Medical Society, with a goal sample size of 12-15 participants. Semi-structured interviews will be performed, asking questions about the subject's opinions, interactions, and relationships with birth doulas. Interviews will be analyzed with an ethnographic approach to look for common narratives and emerging themes.

ANTICIPATED RESULTS

Based on previous accounts in the literature, we expect the physician-doula relationship to be complex and challenging, as the doula is an individual acting outside the traditional medical hierarchy, hired by the birthing woman rather than the physician or the hospital. We expect that collaborative relationships will require careful negotiation of joint goals and complementary scopes of care.

CONCLUSION

This study seeks to better understand the physician-doula relationship. Considering that obstetricians currently oversee the majority of births in the U.S. and hold power in determining standards of care, a better understanding of their attitudes could help identify and minimize possible barriers to women receiving doula care.

The Visualization and Imaging of Cherenkov Emission from Proton Radiation

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INTRODUCTION

Cherenkov radiation is emitted when charged particles travel through a dielectric medium faster than the phase velocity of light in that dielectric medium. This fluorescent light has been visualized during several types of radiation modalities, such as x-ray and electron radiation. Studies have shown that Cherenkov radiation may provide a new method for accomplishing precise and accurate dose delivery through quality assurance and patient alignment protocols. This study seeks to accomplish the imaging of Cherenkov radiation during proton beam therapy in real-time.

METHODS

Before attempting to image Cherenkov radiation during proton therapy, specialized equipment, which includes a complementary metal–oxide–semiconductor sensor, will be used to image Cherenkov radiation during photon and electron beam radiation. After verifying the efficiency of the camera and setting of the equipment, attempts will be made to image Cherenkov radiation during proton beam therapy. All the radiation that we will be testing will be emitted toward a water phantom. The images of Cherenkov radiation obtained throughout the study will be processed using MATLAB.

ANTICIPATED RESULTS

It is anticipated that with appropriate equipment and modification of sensor settings, Cherenkov radiation can be imaged during proton beam radiation. Due to the larger mass of the proton, high energy proton beams do not reach the required velocity to directly emit Cherenkov radiation in a medium; however, through particle interactions in a medium, they are able to transmit that energy to secondary electrons.

CONCLUSION

Although protons themselves may not be directly responsible for the emission of Cherenkov radiation, this phenomenon may still be observed due to the high-energy secondary electrons emitted during interactions within the medium. If observed, this new method may permit the use of Cherenkov imaging for on board treatment verification during proton therapy. In further efforts, quantification of Cherenkov radiation intensity may potentially also be used for dose verification.

Significance of Invaginated Extraprostatic Space Involvement by Prostatic Carcinoma: a 10-year Study

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INTRODUCTION

Investigation of the prostatic capsule has been detailed by Ayala et. al. who identified two areas of deficiencies: the apex and the invaginating area of seminal vesicle duct insertion. This invaginated space (the invaginated extraprostatic space -IES) can be identified radiologically and histologically on gross specimens. The IES is highly vascular with loose connective tissue and may be a route of extraprostatic spread of prostate cancer (Pca). This study investigates the pathological significance of this space and its significance to reading pathologists for documentation.

METHODS

Prostate gross specimens from 300 men following consecutive radical prostatectomies between 2002 and 2008 performed at Beaumont Hospital Royal Oak were identified as the cohort for this study. Serial prostate specific antigen (PSA), patient age, survival years and PCa recurrence rates were obtained throughout their follow-up care. Gross specimens were examined at low magnification for involvement of the IES with reference to the verumontanum, ejaculatory ducts, intraprostatic seminal vesicles, and extraprostatic extension. Statistical analysis will evaluate the 10-year biochemical disease-free survival and 10-year overall survival of patients based on IES involvement of PCa.

ANTICIPATED RESULTS

Patients identified with IES involvement on gross specimen are expected to have poorer short and long-term biochemical-free and overall survival rates in comparison to PCa that does not involve the IES.

CONCLUSION

The results are expected to support the hypothesis that IES involvement by prostate cancer is pathologically significant and should be reported by the reading pathologist. In identifying IES involvement, post-operative follow-up and surveillance can be modified in association with the higher risk of biochemical recurrence.

Project ASK PHYSIO-Analyzing Assumptions of Sexual Knowledge and Physiology

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INTRODUCTION

Approximately 1 in 4 women are victims of sexual assault, while 1 in 5 men admit to perpetrating sexual assault. Research has found that both sexual assault perpetrators and victims display different physiological reactions during the assault. This study seeks to better understand the psychological substructures regarding sexual assault and rape through the use of vignettes, including sexual consent, perceptions of the perpetrator of their own actions, perceptions of the victim of their own actions, and psychological arousal of the participant.

METHODS

200 participants age 18-30 completed a pre-test survey assessing past sexual assault and consensual sexual experiences, demographics, rape myth beliefs, and attitudes about women. After completing the survey, participants skin conductance and heart rate will be measured. Participants were split into 4 groups of 50 people, where each group had 25 females and 25 males, and read 1 of 4 experimental vignettes that describes a woman and a man on a date. The scenario manipulated two factors:

consent- clearly no/ambiguous and sexual precedence- had sex before/did not have sex before.

The story ends with the two characters having sexual intercourse. After the vignette, participants are asked about their perceptions of the vignette in a post-survey. For example, did the female character consent? Was consent assumed by the male character? Should she get medical help? Is she at risk for STIs? Should she get a rape-kit at the hospital? Should she call a sexual assault helpline? Pre- and post-test answers were then compared to see if certain demographic, physiological, or other pretest survey answers are predictors of post survey answers.

ANTICIPATED RESULTS

In groups reading a vignette with clear consent, vs. ambiguous, we expect an increased physiological response (aggravation) and more consistency among answers. It is expected that people with a past history of sexual violence perpetration are less likely to perceive ambiguous consent as non-consenting, and that people with a past history of sexual victimization will be the opposite. We further expect to find correlations between gender, race, socioeconomic status, age, education level, and health care knowledge to all be predictors of post survey responses.

CONCLUSION

The results are expected to support the hypothesis that several factors can be predictors of a person's responses and opinions of sexual assault scenarios.

Prognosis by Coronary Computed Tomography Angiography for Young Obstructive Coronary Disease Patients

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INTRODUCTION

The role of coronary artery disease (CAD) in the morbidity and mortality of young adults has been well established, including the influence of major cardiovascular risk factors on sudden cardiac death and myocardial infarction attributable to CAD. However, there is still relatively little information concerning prognosis in patients with varying degrees of coronary disease, especially in the young. This study seeks to evaluate the specific prognostic utility of coronary computed tomography angiography (CCTA) in young patients with varying cardiovascular risk factors and known obstructive CAD.

METHODS

This is a single-center, retrospective cohort study using data from previous CCTA studies collected and maintained in an approved registry of William Beaumont Hospital patients. The registry contains follow-up data over approximately 2 years. The study population includes all patients who have undergone CCTA imaging from July 2009 to December 2013. The subset patient population of interest includes patients who meet criteria for obstructive CAD. Though the target age group is specific to those <45 years of age, patients who are >45 years of age will be included as a separate cohort for comparison. Key variables of interest include modifiable and non-modifiable risk factors and clinical outcomes (major adverse cardiovascular events, unstable angina, or all-cause death). Frequency and descriptive statistics will be performed for each variable of interest. Comparative analysis will be employed to emphasize associations between risk factors and clinical outcomes between the two age groups. Multivariate analysis will be used within each age group to understand the associations of each risk factor with clinical outcomes.

ANTICIPATED RESULTS

It is expected that certain non-modifiable risk factors will have greater significance for the younger patient groups, based on previous studies.

CONCLUSION

This study could help clinicians further interpret results from CCTA and how risk for younger patients should be assessed, improving management, which could reduce mortality.

Assessment of Correct Use of Nasal Sprays Among Residents at Beaumont

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INTRODUCTION

Allergic rhinitis (AR) is one of the most common illnesses in the U.S. with symptoms that can severely affect patients' quality of life due to chronic inflammation. Intranasal corticosteroid (INS) sprays are the most effective forms of treatment for AR. Newer INS sprays have been very well tolerated, but they can have potential side effects such as epistaxis, irritation, and pharyngitis. These side effects have been reported to occur more often when patients direct the INS spray toward the septum of the nasal passage, so the recommendation is to direct the INS sprays laterally, away from the nasal septum. There is a lack of data on the knowledge level of patients and healthcare providers on this technique. This study aims to assess the knowledge level of resident physicians at Beaumont of this technique. The study also aims to be an education tool for the residents to help increase patient satisfaction and compliance with their medications.

METHODS

This study will use a pre-demonstration questionnaire to assess the knowledge of the correct administering technique of INS sprays among the enrolled residents. Then, a demonstration of the correct technique will be performed and the answers to the questions in the pre-demonstration questionnaires will be presented. Lastly, a post-demonstration questionnaire will be given to assess the residents' impression of the materials presented during the demonstration.

ANTICIPATED RESULTS

We expect that most of the residents will be unaware of the correct administering technique.

CONCLUSION

The results are expected to support the hypothesis that most residents will be unaware of the correct administering technique. Additionally, the majority will find the demonstration of proper intranasal steroid technique to be helpful in increasing their patients' satisfaction and compliance with their medications.

Understanding HRQOL Effects Among Various Treatments for Non-Hodgkin's Lymphoma Patients

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INTRODUCTION

Non-Hodgkin's Lymphoma (NHL), the sixth most common cancer for both men and women in the United States, is one type of cancer that is understudied, especially in regards to the effects of treatment options. Multi-agent chemotherapy, radiation, bone marrow and stem cell transplantation are the most commonly used treatments for aggressive NHL. While aggressive therapy results in complete remission for 66% of NHL patients, there remains a high possibility that survivors will experience adverse effects from their treatment. This study aims to describe differences between various therapies for NHL patients by measuring Health Related Quality of Life (HRQOL) that will provide more information regarding post-treatment options and expectations.

METHODS

NHL patients will be selected through the Cancer Treatment and Outcomes Registry, which includes all cancer patients who have a confirmed cancer diagnosis and started initial treatment at either Beaumont Royal Oak or Troy Hospitals in Michigan, which have a large number of NHL patients that may be representative of the general population. Patients will be given an electronic survey, using the Qualtrics program, which will be comprised of questions reflecting the Functional Assessment of Cancer Therapy – Lymphoma Module and Brief Fatigue Inventory. Health Related Quality of Life and Fatigue outcomes between the various treatment regimens will be compared using ANOVA.

ANTICIPATED RESULTS

Compared to the group who did not receive any forms of therapy, the group that reported having chemotherapy and radiation are expected to have improved quality of life effects.

CONCLUSION

The results are expected to illustrate the differences in quality of life outcomes from different treatments for Non-Hodgkin's Lymphoma. The data of the survey will provide a more comprehensive assessment of HRQOL treatment outcomes and will provide better insight for quality-of-life improvements for NHL patients.

Impact of Humanitarian Experiences on Plastic Surgery Resident Training: A Survey of Program Directors on the Benefits and Disadvantages of Humanitarian Experiences

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INTRODUCTION

International rotations can provide plastic surgery residents with valuable training experience while simultaneously addressing the need for the delivery of surgical care to underserved regions of the world. The Accreditation Council for Graduate Medical Education (ACGME) sets strict educational guidelines for residency programs and milestones that trainee surgeons must meet in order to advance. An international humanitarian surgical experience can provide opportunities to further fulfill these guidelines and aid residents in refining their knowledge and skills. Resident program directors may provide the best insight into the benefits and disadvantages of international humanitarian experiences from the perspective of the home institution.

METHODS

Data will be collected from current plastic surgery program directors with a 15-question survey using the program software Qualtrics. E-mail information will be obtained through the American Society of Plastic Surgeons. Questions will reflect the ACGME guidelines and will be designed to measure the perceived benefits and disadvantages of an international humanitarian experience. Responses will be collected and quantitative statistical analysis will be performed in order to identify key themes and trends between plastic surgery programs.

ANTICIPATED RESULTS

It is expected that plastic surgery resident program directors will report various benefits and disadvantages of international humanitarian experiences pertaining to the home institution's residency program.

CONCLUSION

This research will fill a void in the literature by providing qualitative and quantitative data to identify and highlight key benefits and disadvantages that exist from the perspective of the home institution. With this knowledge, future studies and programs will be able to explore how changes in surgical education and curriculum could help to simultaneously advance resident training and global surgery efforts.

Academic Effectiveness of Medical School Faculty as Perceived by Members of Medical School Faculty and Students

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INTRODUCTION

When hiring new professors, search committees try to follow certain criteria to ensure that each professor has the required credentials and is qualified to teach the material. Students are more attentive to how professors present themselves as well as how they present the information that they teach. What students look for in teachers and what faculty look for in future teachers are both very important in determining who will become a part of the Oakland University William Beaumont (OUWB) School of Medicine faculty. The purpose of the study is to identify the main qualities preferred by basic science faculty.

METHODS

An online survey using the Qualtrics software will be administered to all OUWB School of Medicine students. The items in the survey will be derived from the previously conducted studies designed to identify attributes of good medical teachers. The questionnaire will include a total of four sections in the form of Likert-scale with open-ended questions. The study will attempt to determine the effect of cultural background, gender, discipline, and teaching experience among other variables on perspectives of effective teaching.

ANTICIPATED RESULTS

The data from this study will assess students' opinions on the basic characteristics of an effective basic science teacher and describe the perceptions in light of variables like cultural background and gender.

CONCLUSION

The results are expected to support the hypothesis that OUWB medical students prefer professors who are more personable and engaging, rather than those with outstanding credentials. These results can further be used to aid faculty search committees in finding professors who will best fit the school.

Barriers Preventing the Measurement of an Intraoperative Temperature for Patients Receiving Anesthesia

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INTRODUCTION

A primary challenge for patients undergoing general anesthesia is the possibility of a fall in core body temperature during surgery. General anesthetics are found to produce a significant dose-dependent reduction in core temperature resulting in the body undergoing cold-defense mechanisms such as arterio-venous shunts, vasoconstriction, and shivering. The risk of complications involved in perioperative hypothermia secondary to anesthesia is a significant concern and should be accurately monitored. The primary goal of this study is to identify barriers preventing anesthesia providers from obtaining a core temperature during a pre or post operation procedure.

METHODS

Fifty anesthesia providers within the Beaumont Health System will be recruited for the study. Enrollment into the study will consist of contacting anesthesia providers via verbal and email communication. Data will be collected with the use of a multiple choice questionnaire and recorded into an excel sheet to be analyzed.

ANTICIPATED RESULTS

The anticipated results include identifying barriers that are preventing anesthesia providers from measuring a core body temperature while providing anesthesia, as well as measuring the perception of intraoperative hypothermia regarding the physicians enrolled in the study.

CONCLUSION

The results are expected to raise awareness of the significance of perioperative hypothermia so that anesthesia providers can begin using techniques such as thermal management. This could potentially minimize the risk of patient complications and improve surgical outcomes.

How Hormonal Contraceptive Use Impacts Laparoscopic Skill Acquisition in Biologically Female Medical Students

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INTRODUCTION

Hormonal contraceptive use is commonplace among biological females of reproductive age. Biological females typically have lower testosterone levels than males, and hormonal contraceptive use lowers that testosterone level even further. Higher testosterone levels are shown to be positively correlated with spatial ability and, ultimately, with better performance in surgical skill acquisition. Biological females, particularly those using hormonal contraceptives, may then be at a disadvantage for learning new surgical skills. However, the relationship between hormonal contraceptive use and surgical skill acquisition is not yet understood, and will be examined in this study.

METHODS

Participants (anticipated n=50) are students of Oakland University William Beaumont School of Medicine and are participating under approval of the university's Institutional Review Board. This study makes use of laparoscopic box trainers and the peg transfer task from the MISTELS (McGill Inanimate System for Training and Evaluation of Laparoscopic Skills) battery of tests. The control and treatment groups are divided based on biologically female participants who do not use hormonal contraceptives, and those who do, respectively. Both groups perform several screening tasks regarding demographics, handedness, video game usage, mental rotation ability, and ovulation status. Participants then train on the peg transfer task, recording their times for each attempt until proficiency is reached. An ANCOVA, 2 (cycle/static) x 1 (frequency of repetitions) with spatial ability as a covariate, with appropriate post-hocs as necessary, will be used to statistically analyze differences in the learning curves between naturally cycling participants and those using hormonal contraceptives.

ANTICIPATED RESULTS

Compared to the naturally cycling group, the group using hormonal contraceptives is expected to require greater time and number of attempts to reach proficiency on the peg transfer task.

SIGNIFICANCE

The results are expected to support the hypothesis that hormonal contraceptive use is negatively correlated with surgical skill acquisition. This may have implications for informing contraceptive choices of biological females pursuing careers in surgery. In addition, it may inform future curriculum design for graduate medical programs, to maximize learning opportunities for aspiring surgeons.

Reassessment of Violence Towards Emergency Medicine Physicians in Michigan

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INTRODUCTION

Workplace violence is a common occurrence in the emergency department (ED). Many studies have examined workplace violence on ED nurses, technicians, and other medical staff but there is little research on violence towards ED physicians who are often at the forefront of altercations. A previous 2005 study found that physicians have experienced verbal threats, physical assaults, confrontations outside the ED, and stalking. In response to these findings, healthcare systems have begun to implement armed/unarmed security officers, metal detectors, panic buttons, direct phone lines to police, and/or limited access to areas of the hospital. This study surveys ED physicians in Michigan to evaluate for any changes in perceived safety in the ED.

METHODS

Our study will be a prospective study utilizing a survey administered to current practicing members of the Michigan College of Emergency Physicians across the United States. The survey will estimate violent acts over the past 12 months against ED physicians including verbal threats, physical assault, confrontations outside the ED, stalking, social media, and violence through Press-Ganey patient satisfaction surveys. It will also include questions on demographics, quantity and type of violence, and physician reactions.

RESULTS

The survey was released for participants to complete in December 2017. Following a 6-month period, the results will be compiled for statistical significance.

DISCUSSION

Findings will help EDs recognize that ED physicians are at risk of workplace violence from their patients. By highlighting these risks, we hope that EDs will implement more stringent security measures to offer better protection to their ED physicians.

Effect of a Deep Vein Thrombosis Management Protocol on Admissions at Beaumont Hospital - Troy

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INTRODUCTION

Each year there are approximately 1 million cases of deep vein thrombosis (DVT) and upwards of 500,000-700,000 hospital admissions in the United States. Patients seen in the emergency department (ED) have traditionally been admitted to the hospital and started on bridging anticoagulation therapy. However, with the emergence of oral anticoagulants, there has been growing evidence that selected low risk patients can be safely managed as outpatients. The primary goal of this study is to develop a protocol for optimal treatment of patients with newly diagnosed lower extremity DVT and assess the potential impact on reducing hospital admissions.

METHODS

A protocol was developed primarily guided by 2016 guidelines from the American College of Chest Physicians (CHEST). This was applied to a comprehensive chart review on 286 patients who were seen at Beaumont Hospital Troy in 2015 with a DVT diagnosis. Three groups of patients were analyzed: inpatient admission, outpatient admission, and discharge from ED. Charts were analyzed according to presentation, past medical history/co-morbidities, and clinical risk factors. The data collected was run through the protocol as a simulation of the possible outcomes had the protocol been in place.

RESULTS

Simulation through the protocol showed that 13% of inpatient admissions and 52% of outpatient admissions would have been discharged, and 18% of those discharged from the ED would in turn have been admitted.

CONCLUSION

The results support the hypothesis that the creation of this type of protocol would reduce the number of unnecessary admissions for DVT. It also highlights the importance of further investigation into patients who were discharged from the ED for DVT, so as to not miss situations in which admission might be preferred.

Early Detection of Atrial Fibrillation with a Smartwatch: A Pilot Study

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INTRODUCTION

Atrial fibrillation (AF) is the world's most commonly diagnosed dysrhythmia. Patients with AF are at increased risk for cardiovascular and thromboembolic events. With heart disease first, and stroke as the fifth leading cause of death in the U.S. earlier detection of AF is paramount. With the advent of smart watches this has become a possibility. As a result, this study will assess the effectiveness of using smart watches compared to implantable devices in accurately detecting AF episodes.

METHODS

The study is expected to enroll 50 to 100 AF patients through the Michigan Heart Group office, with data monitoring at every 25 patients. The watches (provided by each participant) will use an application called cardiogram which will collect the necessary data. Comparisons of the proportion of events detected in the test device (smartwatch) to an a priori specified percentage (80%) using the gold standard (implantable device) will be made. Thereafter, a chi-square test along with an analysis of variance will be performed. Upon completion of the study, there will be a 10 questions electronic survey designed to obtain qualitative data about the participant experiences with the watch.

ANTICIPATED RESULTS

Compared to the gold standard, it is expected that the percentage of accurately detected episodes of AF will be greater than the a priori specified percentage. The survey is expected to provide a better understanding of how the patients felt about using a smart watch. It is also expected that the smart watches will not be inferior to implantable devices, hence they can be used to detect episodes of AF accurately.

CONCLUSION

The results are expected to support the hypothesis that smart watches can accurately detect episodes of AF when compared to an implantable device. Eventually, their use in early detection of AF will improve the outcomes of patients.

The Effects of Antidepressant Medication on the Duration of Post-Operative Opioid Use

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Introduction

The worsening opioid epidemic in America is commanding justified attention. In 2015, nearly 40% of all drug overdoses were caused by prescription pain relievers. The physical and emotional impact of invasive procedures such as total hip arthroplasty (THA) and total knee arthroplasty (TKA), place vulnerable patient populations at risk of chronic opioid abuse. There is evidence that antidepressant therapies may modulate the effects of opioid analgesics. The primary goal of this study is to determine if antidepressant therapy is associated with reduced post-operative opioid use.

Methods

This study is a secondary analysis of data from a prospective outcomes study. Participants scheduled for primary, unilateral TKA or THA and at least 18 years of age were eligible. Exclusion criteria included being a non-English speaker, inability to provide written informed consent, undergoing bilateral or revision arthroplasty, and prisoners. The final sample was 375 participants. Phenotypic indicators from the Analgesic Outcomes Study II data were compiled with antidepressant medication use from the electronic medical record up to six months after surgery.

Planned statistical analyses: participants will be divided into 4 separate groups: 1) opioid naïve and no antidepressants preoperatively, 2) opioid naïve and taking antidepressants preoperatively, 3) taking opioids preoperatively but not taking antidepressants, 4) taking opioids and antidepressants preoperatively. Baseline phenotype descriptive statistics will be presented for each group. Group differences in outcomes of interest, specifically amount of oral morphine equivalents (OME) consumed in 1-month and whether a patient was continuing opioid use at 1-month will be assessed with ANOVA and chi-square, respectively. Planned pairwise comparisons will be computed, with Group 4 (opioids and antidepressants) serving as the primary comparison group. A multivariate linear regression model will also be conducted to assess amount of OME consumed in 1-month.

Anticipated Results

Patients on opioids will present with a worse pre-surgical clinical phenotype than opioid naïve patients. Likewise, patients on antidepressants will present with a worse pre-surgical clinical phenotype than those not on antidepressants. Patients taking antidepressants will consume less total OME over a 1-month period than those not on antidepressants. Patients taking antidepressants will be more likely to stop using opioids at 1-month than those not taking antidepressants.

Conclusion

The results are expected to indicate that antidepressant medication decreases both the opioid used after surgery and the number of patients continuing to use post-operative opioids after 1 month.

Systematic Review on Genetic, Growth, and Anatomical Factors for Ligament Generation

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INTRODUCTION

The Anterior Cruciate Ligament (ACL) is a ligament in the knee that connects the femur to the tibia. The ACL prevents the anterior translation of the tibia over the femur. Moreover, the ACL provides rotational stability to the knee. ACL ruptures are the most common knee injuries. Due to its important function and clinical relevance, the ACL has been one of the most extensively studied structures in the musculoskeletal system of the human body. However, to this point, no systematic reviews exist that evaluate the factors involved in the embryology of ligaments, tendons, and cartilage. The primary goal of this study is to describe the morphogenesis of ligaments and cartilage and the chemical environment in which this occurs. A secondary goal is to translate this understanding to ligament repair.

METHODS

A systematic review of the literature will be performed using the search terms, growth factor, fibroblast growth factor, gene-environment interaction, anatomical factors, cartilage, tendon, and ligament. Studies not written in the English language will be excluded. Searches will be conducted in PubMed, Embase, CINAHL, Cochrane, and Scopus. The screening process and analysis will be conducted separately by two independent observers. The CASP Systematic Review Checklist will be used to critically appraise this study.

ANTICIPATED RESULTS

Upon screening of the literature, evaluation of the existing knowledge on the development of ligaments, tendons, and cartilage will be done. Using this knowledge, we further expect to translate this knowledge to modify current ligament repair mechanisms in surgery for ACL injuries in order to improve outcomes.

CONCLUSION

The results are expected to support the hypothesis that there is room for improvement in ACL repair outcomes and that studying the development of ligaments, tendons, and cartilage will provide a framework for developing these improvements.

A Study Evaluating Blood Glucose Trends at a Youth Diabetes Camp

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INTRODUCTION

Camp Midicha is a camp for children aged 8-17 with Type 1 Diabetes mellitus located in Fenton, Michigan. Camps such as these provide an opportunity for children with chronic disease to enjoy traditional experiences and gain confidence in managing their disease. Blood glucose (BG) levels of participants are closely monitored to avoid complications such as hyperglycemia, which can have potentially serious outcomes such as diabetic ketoacidosis. For this reason, it is important to carefully follow, manage, and ideally prevent high blood sugars. This study aims to compare trends in BG for campers who wear insulin pumps that are removed prior to swimming versus those who do not.

METHODS

This study was conducted as a retrospective review of the camp's medical records. In particular, trends in BG were compared between campers who A) wear a removable insulin pump and B) wear a non-removable pump or utilize insulin injections. The records that were analyzed included all of the campers who participated in a one-week session at Camp Midicha during the summer of 2017, encompassing approximately 450 participants. Statistical analysis will be used to compare the groups.

ANTICIPATED RESULTS

Based on observations at previous camp sessions, it is anticipated that those campers who wore an insulin pump that was disconnected for swimming will present with a larger increase in BG from lunch to dinner and more frequent dinnertime hyperglycemia than those campers using a non-removable pump or injections. This finding could be due to the fact that campers who have to remove their pump prior to swimming have a lapse in their basal insulin coverage.

CONCLUSION

This study, in showing that a subset of campers has an elevated dinner time BG, could provide a rationale for changing camp procedures to prevent this group of campers from experiencing hyperglycemia and its potential and serious complications.

Measures in Congenital Hydrocephalus: A Systematic Review

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INTRODUCTION

Congenital hydrocephalus is the buildup of cerebrospinal fluid in the fetal human brain leading to brain damage and subsequent physical and mental illness. This disease prevails in developing nations, with rates extrapolated to be higher than that of developed nations, which is 0.5-1/1000 live births, largely due to lack of effective preventative measures, such as adequate maternal education and prenatal care, and high cost and scarcity of treatment. The objective of this study is to review easily applicable and cost-effective preventive measures for congenital hydrocephalus employed globally which can be potentially implemented in developing nations in order to reduce disease onset.

METHODS

A comprehensive systematic review of research was conducted utilizing literature from Pubmed (Medline), EMBASE, Cochrane Library, Scopus, and Web of Science. Some of the key search terms used were: congenital, hydrocephalus, and preventative measures. Only literature written in English from 2009-2018 (past 10 years) involving human maternal patients and human pediatric patients between the ages of 0-4 weeks were considered. Only randomized double-blind, cohort, and case control studies, and published journal articles were considered. Systematic reviews, meta-analyses, editorials, expert opinions, comments, and abstracts were not considered. The Joanna Briggs Institute checklist was used to critically appraise the relevant literature. Online tools and software such as Covidence and Zotero were used to organize and sort through the literature. Consolidation and qualitative assessment was conducted to select successful, efficient, and cost-effective preventative measures implemented globally. Research gaps relevant to the question such as what is known, what remains unknown, and uncertainty within research findings were identified.

ANTICIPATED RESULTS

The preliminary results suggest that a few preventative measures, such as regular maternal checkups and ultrasound screening, vitamin supplements, and immunizations during pregnancy, might be feasible and cost-effective for use in developing nations in order to reduce burden of disease.

CONCLUSION

By systematically reviewing prior research, this study has identified some of the most feasible and cost-effective preventative practices that developing nations can implement to control instances of congenital hydrocephalus.

Improving Interdisciplinary Teamwork Between Nurses and Residents Through a Resident Photograph Initiative

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INTRODUCTION

Historically nurse-physician teamwork has the potential for improvement, with medical errors, miscommunication, unnecessary morbidity, and increased hospital costs often related to poor collaboration. Residents, physicians in training, have even more of a difficult time forming teamwork relationships due to rotating from one unit to another. The goal of this study is to identify whether a photograph initiative in the corridors of the inpatient units along with handouts in the nurse's lounge will improve teamwork between nurses and residents.

METHODS

Prior to enrollment, the medical student investigator will explain the purpose of the study and obtain informed consent from the residents, as well as provide an information sheet to both the nurses and residents regarding the study. The specific intervention consists of hanging up name-labeled resident photographs on the main corridor of the inpatient unit. At the same time, a handout with the same labeled photos, along with additional information about each resident (their medical school and a "fun fact") will be placed in the Nurses' Lounge. A paper survey designed to evaluate teamwork will be distributed to both nurses and residents. Data will be collected from nurses and residents at the end of the resident monthly rotation from units that displayed the photos (intervention group) and those that did not (control group) to identify any impact on their perceptions of nurse-resident teamwork. The data will then be analyzed utilizing t-tests to evaluate the variation between nurses and residents exposed or not exposed to the photograph initiative.

ANTICIPATED RESULTS

Compared to the control group, the intervention group is expected to have improved teamwork scores on the survey which may indicate improved collaboration between nurses and residents.

CONCLUSION

Results are expected to support the hypothesis that instituting this photograph initiative will improve teamwork between nurses and residents.

Upper Respiratory Infection Risk in Continuous Positive Airway Pressure Users

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INTRODUCTION

Obstructive sleep apnea (OSA) is a chronic disorder characterized by upper airway obstruction during sleep. The gold-standard treatment for OSA - continuous positive airway pressure (CPAP) - is delivered by a mechanical device, tubing, and mask that splint the upper airway open during sleep. The primary aim of this research is to compare overall Upper Respiratory Infection (URI) rates before and after initiation of CPAP in a large clinical sample of patients with OSA. The secondary aim is to identify patient characteristics - including age, diabetes, chronic obstructive pulmonary disease (COPD), and smoking status – that are associated with change in URI rate, post-CPAP initiation.

METHODS

Patients with OSA who have been referred for initial CPAP titrations at the University of Michigan Sleep Disorders Center between August 2012 to August 2014 will be identified through the University of Michigan sleep lab database. Electronic medical records will be searched using EMERSE, the University of Michigan's Electronic Medical Record Search Engine, to identify ICD-10 diagnostic codes that indicate the most common primary URI diagnosis. Separate EMERSE searches will be conducted to determine the frequency and type of primary URI diagnoses 2 years leading up to CPAP titration date, and 2 years post-CPAP titration date.

ANTICIPATED RESULTS

We anticipate no associated increased rates of URIs in CPAP users among OSA patients. Additionally, we expect that OSA patients with chronic conditions associated with increased URI risk will actually experience a decrease in URI rates following CPAP use compared with OSA patients without chronic conditions or non-smokers.

CONCLUSION

If no association between CPAP and URI risk exists, findings from this study will allay patient and provider concerns surrounding repeated use of CPAP equipment.

Performance of CT Colonography and Impact of Extracolonic Finding

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INTRODUCTION

Computed Tomography Colonography (CTC) provides a non-invasive modality to screen patients for colorectal cancer (CRC). This study aims to identify the incidence of colonic findings and extracolonic findings from CTC screening for the Beaumont patient population and compare those values to the national levels. The study aims to conduct a review of our clinical screening program.

METHODS

We conducted a retrospective review of 313 patients (age ≥ 50) screened with CTC between 1/1/2010 and 1/1/2015. Clinical data was classified based on the CT Colonography Reporting and Data System (C-RADS) and then compared to the benchmark values. The follow up data on subsequent testing following CTC was documented. Chi-square test of independence, Fisher exact test, and two tailed hypothesis test of proportion were performed.

RESULTS

The incidence of colonic polyps for the patient population is 9.3% (30/313 patients) which is significantly lower when compared to the accepted benchmark level of 14.3% ($p=0.019$). The study identified 34 polyps (≥ 6 mm) with an average size of 8.58 mm. Only 23.5% (8/34 identified polyps) were resected after identification. 78.7% (244/310 patients) presented with at least one extracolonic finding. C-RADS classification rates were C0 (0.1%), C1 (89.8%), C2 (2.9%), C3 (5.1%), and C4 (1.3%). There was significant difference between C1 and C2 C-RAD scores (P -value 0.019 and <0.001 , respectively). E-Categories for C-RAD rates were 86.8% (E1 or E2), 11.3% (E3) and 2.9% (E4) and showing no significant difference compared to benchmark.

CONCLUSION

The study showed a significantly lower incidence of colonic polyps compared to benchmark levels and thus indicating a more adherent CRC screening population ($p = 0.02$). There is a statistically significant difference between C1 and C2 C-RAD scores indicating a higher incidence of normal colonic findings and a lower incidence of intermediate polyps. The extracolonic findings are within the expected national range.

Racial and Socioeconomic Effects on Multiple Myeloma Health Outcomes

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INTRODUCTION

It is well documented that multiple myeloma (MM) is 2-3 times more common within the African- American community than those of Northern European descent, but African-American patients typically have a better prognosis in terms of overall survival. However, these racial differences in disease presentation are often observed in the context of socioeconomic disparities that many studies suggest have a significant impact on patient survival. This study seeks to examine the differences in patient outcome by race and socioeconomic status, and determine how cytogenetic risk factors are distributed within these groups.

METHODS

This study will utilize patient chart and lab data collected over the last 8 years at Beaumont Health. Patients will be selected based on their diagnosis with multiple myeloma, and analyzed by their reported race and estimated income as determined by US Census Bureau reported median income for their place of residence. Patients of European descent will be used as controls to measure the distribution of cytogenetic markers, prognostic estimates based on the Revised International Staging System for MM, and patient survival and health outcomes. Similar analysis will be carried out in parallel on the National Cancer Institute's Surveillance, Epidemiology, and End Results database to compare survival trends.

ANTICIPATED RESULTS

Compared to the control group, African Americans are expected to have a lower prevalence of high risk cytogenetic markers and have better prognosis. Further, lower socioeconomic status is expected to have worse prognosis, though cytogenetic distribution is not currently known. Data collection and analysis will take place from December 2017 through January 2020.

CONCLUSION

The results are expected to support the hypothesis that socioeconomic status has a meaningful impact on MM patient outcome in addition to race. Furthermore, this study will determine what cytogenetic markers are prevalent within socioeconomic groups, and how their distribution correlates with outcome.

Incidence of Ulnar Translation in Volar Radiocarpal Ligament Repair for Radiocarpal Fracture Dislocations

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INTRODUCTION

Radiocarpal fracture dislocations are rare injuries caused by high energy trauma resulting in a severe shear or rotational insult. The dislocation results in disruption of the radiocarpal ligaments and fracture of the radial styloid requiring meticulous repair, for which the outcomes are not well defined. The aim of our study is to identify whether or not repair of the volar radiocarpal ligaments in radiocarpal fracture dislocation decreases the incidence of ulnar translation of the carpus and improves functional outcomes.

METHODS

A retrospective chart review of patients older than 18, who experienced Dumontier type 1 volar radiocarpal fracture dislocations between 2005 and 2017 with greater than 1 year follow up was conducted. For the patients who satisfied the criteria of radiocarpal fracture dislocation based on ICD9 and 10 coding, confirmation of diagnosis was made utilizing radiographic review. Outcome variables such as radiographic ulnar translation, wrist range of motion, return to work, Quickdash questionnaire outcome, VAS pain score, grip strength, and number of revision operations were collected. Predictor variables such as surgery or non-operative treatment, age, hand dominance, laborer or non-laborer occupation, type of surgical fixation, worker's compensation injury, sex, diabetes, thyroid disorder, obesity, inflammatory arthritis will also be noted. Patients will be stratified according to listed variables with statistical analysis to determine their significance in terms of predictive variables.

ANTICIPATED RESULTS

We anticipate that repair of the volar radiocarpal ligaments, in radiocarpal fracture dislocations, decreases the incidence of ulnar translation of the carpus. We also anticipate improvement of functional outcomes with repair of the volar radiocarpal ligaments.

CONCLUSION

This research will guide the management of this complex traumatic condition and help influence outcomes in a positive direction.

Cultural Competence of Physicians in Diabetes Management during Ramadan

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INTRODUCTION

As one of the five pillars of Islam, fasting during Ramadan is obligatory for all healthy Muslims. However, diabetic patients who fast during Ramadan are at an increased risk of developing complications like hypoglycemia, dehydration and diabetic ketoacidosis. Current regulations recommend that diabetic patients, who wish to participate in Ramadan, should receive counseling and education before fasting. To meet these recommendations, it is essential that physicians are aware of the cultural practices of fasting during Ramadan and its sequelae in diabetes management.

METHODS

This exploratory pilot study utilizes a pre- and post- intervention survey design. Study participants include Family and Internal Medicine attending physicians from Beaumont Hospitals in Troy, Grosse Pointe and Dearborn. Physicians are provided with a pre-survey to assess their current knowledge about Ramadan and their attitudes about treating diabetic patients during Ramadan. One week later, an educational intervention is presented to the participants. This includes an interactive PowerPoint presentation discussing Ramadan, fasting-related complications and recommendations for diabetes management. The knowledge and attitudes will be evaluated with post-surveys administered both immediately and 3 months after the intervention. Data will be examined over the three time points using ANOVA or Krushkal-Wallis test. Multiple comparisons between the three time points will be integrated to see how the knowledge and attitudes change. Also, multivariate regression or subgroup analyses will be used to determine the effect of demographic factors on the outcomes.

ANTICIPATED RESULTS

Compared to the knowledge and attitudes in the pre-intervention group, those in the post-intervention group are expected to exhibit greater knowledge about Ramadan and increased confidence in managing diabetic patients who fast during Ramadan.

CONCLUSION

The results are expected to identify any gaps in physicians' knowledge about Ramadan and emphasize the importance of providing culturally competent care to diabetic patients who fast during Ramadan.

The Acute Effects of High and Low Carbohydrate Diets on Lean, Fat, and Bone Mass as Measured by Dual Energy X-Ray Absorptiometry Scans

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INTRODUCTION

High protein, low carbohydrate (HPLC) diets promote quick weight loss which may not involve adequate fat mass. Previous research has not shown with certainty the acute effects of a lower carbohydrate intake. Hence, we aim to evaluate the effects of varying carbohydrate intake on body composition in the short term. We theorize that the initial lower carbohydrate intake will cause glycogen depletion along with glycogen-bound water resulting in a reduction of lean mass. We wish to demonstrate that HPLC diets induce mainly water loss in order to caution dieters against abandoning long-term caloric restriction towards consequential overall fat mass. Secondly, we will be analyzing nutrition data to help explain changes in lean, fat and bone mass.

METHODS

Ten healthy college-aged males will be recruited for the study. Each participant will consume the HPLC and the High Carbohydrate Low Fat (HCLF) diets ad libitum for two weeks each, separated by a 4-week washout period. Participants' dietary intake will be recorded onto the Nutrient Data Research System (NDSR). Body composition will be measured using a dual energy x-ray absorptiometry (DEXA) at 1-week intervals through each dietary period. Changes in body composition will be statistically assessed using paired t-tests, with whole body lean mass and fat mass being the main outcome variables ($p < 0.05$).

ANTICIPATED RESULTS

We anticipate there will be a significant decrease in lean body mass (LBM) from baseline in the HPLC diet. Conversely, LBM is expected to increase throughout the HCLF diet. Each diet is expected to be associated with minimal changes in fat mass.

CONCLUSION

We aim to enlighten dieters that early weight loss from a lower carbohydrate intake is predominantly lean mass, not fat mass. Furthermore, we hope to further explore the changes in nutrition consumption in relation to the participants' progression of their respective lean mass, fat mass, and bone density.

Penicillin Allergy and Alternative Antibiotics in Emergency Department and Intensive Care Units

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INTRODUCTION

Penicillin is a commonly prescribed β -lactam and 10% of the population reports a penicillin allergy. An unsubstantiated allergy may lead to inappropriate use of broad-spectrum antibiotics, antibiotic resistance, and potential sub-optimal therapy/outcomes. The goal of this study is to examine the impact of penicillin drug allergy documentation in the Emergency Department (ED) and Intensive Care Unit (ICU) in the Beaumont Health System.

METHODS

This project is a retrospective review of ED and ICU electronic charts of patients reporting a penicillin allergy receiving treatment within a one-year time period from June 1, 2016 through June 1, 2017 in the Beaumont Healthcare System in Michigan. Data will be collected on 250 ICU patient charts and 250 ED patient charts assessing numerous variables. These include symptoms associated with penicillin allergy, other allergies documented, history of allergy consult, and subsequent antibiotic treatment, among others. Logistic regression analyses will be conducted to determine variables that are statistically significant predictors of a subject with penicillin allergy.

ANTICIPATED RESULTS

Anticipated preliminary data collected will identify key variables of drug allergy documentation and assess antibiotic choice based upon penicillin drug allergy documentation. Anticipated results include non-standardized variable recordings of allergic response (specific symptoms, age at which response took place), and treatment with alternative antibiotics. In addition, we anticipate many documented penicillin allergies will be unsubstantiated with few records detailing the reaction.

CONCLUSION

If a detailed history was obtained followed by verification of the penicillin allergy through skin testing and/or oral challenge, a more accurate diagnosis could be made thereby preventing mislabeling of individuals with penicillin allergy. Further, the increase in non- β -lactam drugs has been associated with longer hospital stays, serious antibiotic resistant infections, and increased health care costs.

Trends in Quality and Safety Research Regarding Spine- Related Procedures

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INTRODUCTION

With the publication of *To Err Is Human: Building a Safer Health System* by the National Academy of Medicine (NAM) in late 1999 highlighting the high rate of preventable mistakes in the healthcare field, and the implementation of the Affordable Care Act (ACA) in 2010 emphasizing quality improvement and healthcare access, the emphasis in medicine has shifted drastically towards quality improvement. The question remains, however, are physicians more inclined to change their practices in medicine (increased focus on quality improvement) in response to scientific-induced awareness vs. policy-induced awareness? We aim to analyze the trend in publications regarding quality improvement in spine-related procedures from 2000-2010 and 2010-2016 to see if there was a significant difference in quality improvement related publications between the two time periods.

METHODS

Published papers were identified using three search engines: Pubmed/MEDLINE, Web of Science, and Google Scholar. English retrospective and prospective publications regarding quality and efficacy of spine-related procedures such as spinal decompression and spinal fusion, surgical technique, and post-operative complications of spinal surgeries will be included. We will then perform a statistical analysis to compare the number of publications from 2000-2010 and 2010-2016 to see if there is a significant difference between the two time intervals. This will be done via a two-sample t-test using means from each respective time intervals.

ANTICIPATED RESULTS

When compared to the 2000-2010 group, we anticipate that the 2010-2016 cohort will have a significantly higher number of quality related research publications. We also anticipate that there will be a positive trend in publications as time progresses through the two groups.

CONCLUSION

The results are expected to support the hypothesis that physicians are more responsive to policy-induced awareness, such as the Affordable Care Act, vs. scientific-induced awareness, such as the NAM's publication *To Err Is Human: Building a Safer Health System*.

Investigating the Role of Artmaking as a Therapeutic Tool in the Treatment of Chronic Migraine

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Introduction

Migraine is one of the leading causes of disability worldwide, and often leaves both patients and physicians frustrated due to its complex nature. Although treatments exist for the disorder, its comorbidity with anxiety may offer novel routes for developing more effective therapies with minimal side effects. Art therapy has been shown to be a successful tool in the treatment of anxiety, however, artmaking has not been explored as a treatment for migraine. This study sought to investigate the efficacy of artmaking as a complementary intervention to pharmacologic therapy in treating chronic migraine.

Methods

During this 12-week study, thirty-three participants, divided into experimental and control groups, recorded their headache activity via a daily log. This data was collected weekly and evaluated following a Per Protocol analysis, upon study completion. Participants in both groups completed longitudinal surveys, which were administered in conjunction with the standard treatment regimen of Botox injections, to assess changes in their quality of life, functional capacity, and level of disability. Additionally, participants in the experimental group received art supplies upon enrollment and were instructed to draw what their most recent migraine felt like each day for the duration of the study. The artwork was collected on a weekly basis and evaluated.

Results

Initial results indicate a trend towards a reduction in overall headache activity and improvement in quality of life measures among the experimental group, compared to control. The Per Protocol analysis indicated a statistically significant decrease in tension headaches among the experimental group.

Conclusion

When coupled with an established medication regimen, artmaking may improve treatment outcomes of patients suffering from migraine and other primary headache disorders. This preliminary study indicated further research is warranted to investigate the efficacy of formal art therapy sessions as treatment for primary headache disorders.

Factors Affecting Treatment Outcomes in Elderly Patients with Acute Myeloid Leukemia

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INTRODUCTION

Acute myeloid leukemia (AML) is an aggressive malignancy that most commonly affects older patients. It involves a neoplastic accumulation of immature myeloid cells (> 20%) in the bone marrow and may arise from dysplasia due to pre-existing conditions, such as myelodysplastic syndrome, or from prior exposure to certain factors, such as radiotherapy. This analysis seeks to better understand the association between treatment patterns, AML subtype, cytogenetics, and short-term survival among elderly AML patients. Additionally, this study aims to identify patient and disease-related factors that might influence the effectiveness of each treatment approach, specifically focusing on comorbidities that might influence disease progression, treatment efficacy, and treatment toxicity.

METHODS

A retrospective analysis of de novo AML cases treated at Beaumont Health, Royal Oak was conducted. Patients under 65 years of age, instances of acute promyelocytic leukemia, and previous chemotherapy recipients were excluded. Age, sex, induction therapy, cytogenetic abnormalities, AML subtype, and short-term survival were extracted from these records. Multivariate analysis was conducted to assess the significance of each variable on short-term mortality. Comorbidity data will later be collected in order to assess their effects on treatment outcomes in elderly AML patients.

ANTICIPATED RESULTS

Advanced age, poor cytogenetics, and male sex are statistically associated with worse short-term survival. Moreover, there is an additive effect that further negatively affects tolerance of induction treatment in AML and overall disease survival. As we continue to collect and analyze data, we also expect to find that comorbidities, such as cardiovascular disease and hepatic disorders, greatly influence the treatment approach used by physicians and negatively affect patient survival rates.

CONCLUSION

The results of this study will help us better understand which factors have a greater influence on treatment tolerance and, consequently, better inform physicians about the best treatment strategy to be utilized for individual patients.

Efficacy of Continuous Glucose Monitors in a Diabetes Camp Setting

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INTRODUCTION

Type 1 Diabetes is one of the most common chronic diseases in young adults. Successful daily management often requires numerous insulin injections and multiple finger sticks for blood glucose level testing. The use of Continuous Glucose Monitors (CGMs) has recently increased as a means of disease management. Although it is known that CGMs are useful in notifying individuals of impending dangerous glucose levels, the efficacy of CGMs in an American Diabetes Association (ADA) camp setting is unknown. As safety is the top priority at ADA camps, this research study strives to determine whether CGMs are effective in reducing harmful glycemic events during camp sessions.

METHODS

This pilot study is a retrospective case-control study. Of the 500 campers who attended ADA Camp Midicha in 2017, 50 used CGMs while at camp. Meal-time blood glucose levels documented in camper charts will be reviewed for these 50 campers as well as 50 age and gender matched controls. Specifically, the incidence of hypoglycemia (defined as a glucose < 80 mg/dL) and hyperglycemia (glucose > 300 mg/dL) will be collected. Information regarding gender, age, insulin doses, and CGM brand/model (if applicable) will also be collected.

ANTICIPATED RESULTS

As campers who used CGMs at camp were likely to be more aware of their glycemic trends, it is anticipated that these campers will have experienced fewer extreme glycemic events (hypo- or hyperglycemia) compared to age and gender matched controls.

CONCLUSION

If the current research project determines that campers using CGMs have more consistent glycemic control than their peers without CGMs, the use of CGMs to dose insulin in the camp setting can be considered for future camp insulin dosing protocols. If CGMs prove to keep campers safe, their use at camp can be strongly recommended, not only to decrease dangerous glycemic events, but also to minimize finger sticks.

Best Practices for Treating LGBTQ Patients

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INTRODUCTION

The purpose of this project is to provide research into the best practices that physicians currently use and could potentially implement when dealing with patients from the LGBTQ (lesbian, gay, bisexual, transgender, queer) community. Research demonstrates that people from this community suffer from greater health disparities and have greater difficulty accessing care than the average population. The current study will solicit commentary on which practices can improve the healthcare of LGBTQ patients and how comfortable physicians are with this patient population in comparison to whether they advertise as being LGBTQ-friendly practices.

METHODS

200 physicians from Southeastern Michigan will be recruited to fill out a published survey instrument pertaining to their attitudes, behaviors, and knowledge of LGBTQ patients. They will be chosen based on how they advertise online to their potential patient population, and both physicians who advertise as being LGBTQ-friendly and those who do not will be equally solicited for responses. Participation will be compensated. Upon conclusion of data collection, the results will be analyzed using one-way ANOVA, chi-square, Pearson's correlation, and regression analysis.

ANTICIPATED RESULTS

Compared to physicians who do not advertise as being LGBTQ-friendly, those who do are expected to have more knowledge of, better communication with, and more positive attitudes towards LGBTQ patients. In addition, we anticipate that the physicians will give cohesive suggestions for the best practices they have found to treat LGBTQ patients and how best to implement those.

CONCLUSION

The results are expected to support the hypothesis that physicians who advertise as being LGBTQ-friendly will be more comfortable treating LGBTQ patients. In addition, the results should provide useful suggestions for physicians and medical schools to use when treating this patient population.

Does Double Coverage Double Cover: Sub-Analysis of Temporal Variation

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INTRODUCTION

There are significant clinical and economic burdens associated with antibiotic resistant bacterial infections. Among the worst are extensively drug resistant and even pan drug resistant Gram-negative pathogens. There has been a national initiative for infection control and antibiotic stewardship to combat the growing problem of antibiotic resistance. Beaumont Health has introduced numerous policies focused on reducing antibiotic resistance. The purpose of this study is to analyze variations in patterns of antibiotic resistance in Beaumont Health on a year to year basis.

METHODS

A retrospective analysis of antibiotic resistance was performed on all Gram-negative clinical isolates from the Beaumont Royal Oak's Clinical Microbiology Laboratories collected between October 2011 and December 2017. A total of 248,658 isolates were identified. Isolates with missing data, duplicates, or not relevant to this study were removed leaving a total of 170,071 isolates. Relative antibiotic resistance was determined for the years 2012-2017.

RESULTS

Overall the number of isolates with any resistance were maintained at approximately 13% from the years 2012-2017. However, the percentage of highly resistant isolates decreased from 0.95% in 2012 to 0.32% in 2017. In isolates with resistance to one of the first-line antibiotics, the resistance to ciprofloxacin as a second-line agent decreased from 65% in 2012 to 55% in 2017. The percentage of isolates not susceptible to amikacin as a second-line agent decreased from 14% in 2012 to 6% in 2017.

CONCLUSION

The overall rate of resistant isolates is essentially unchanged from year to year. However, the rate of extensively resistant Gram-negative bacteria has decreased by two-thirds. The overall decrease seen from 2012-2017 correlates with initiatives of antibiotic stewardship. Even though the percentage of non-susceptible isolates to ciprofloxacin has decreased, it is still not a reliable second-line agent. The decrease in non-susceptible isolates to amikacin suggests that it may be an even more efficacious second-line agent.

A Human Papillomavirus Educational Intervention at Oakland Community College

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INTRODUCTION

The estimate of men and women infected with Human Papillomavirus (HPV) is 79 million. Specific strains of HPV are linked to the development of cancer but fortunately, there is a preventative vaccination to help protect those at risk for contracting HPV infection. As vaccination rates for HPV in Michigan are low, it is hypothesized that an educational module on the vaccine and virus will increase HPV knowledge and intent to receive the HPV vaccination within a group of community college students.

METHODS

An educational presentation consisting of myths and facts of HPV transmission, clinical presentation, and vaccination was offered to Oakland Community College students. This information was presented through a “game show” style that encouraged interaction as participants competed for points. Recruitment to the event was primarily through flyers posted on approved bulletin boards. Informed consent was obtained. Participants 18 years or older were invited. Pre- and post-surveys were administered to determine any changes in knowledge or opinion on the topic. The pre-survey also included demographic information and vaccination status.

RESULTS

Data has been collected and is limited, as attendance at the educational event was low (n=2). While data was compiled in an Excel spreadsheet and frequency distributions were generated, it is not possible to state whether any improvement occurred due to the limited data. If more data was collected, paired t-tests or the non-parametric equivalent, as appropriate, would have been used to analyze the data for any improvement in post-survey knowledge.

CONCLUSION

It was anticipated that collected data would identify an increase in HPV knowledge after the educational module. However, further data collection would need to take place to fully establish that this format of interactive presentation may be an efficient and impactful way to improve HPV vaccination knowledge and intention to receive the HPV vaccine.

Anatomical Considerations of the Recurrent Laryngeal Nerve and its Vulnerability during Surgical Procedures of the Neck

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INTRODUCTION

Accurate knowledge of anatomical variation provides information for preventing inadvertent intraoperative injury, improving patient safety, optimizing clinical outcomes, and ultimately guiding best clinical and surgical practice. The present study aims to assess the potential anatomical variations of recurrent laryngeal nerve (RLN) pertaining to its course, branching pattern, and its relationship to the inferior thyroid artery, which potentially makes it vulnerable to injury, compression, or stretch during surgical procedures of the neck, together with considerations of side preference.

METHODS

The study was done on 57 formalin-fixed cadavers used for dissection as part of Gross Anatomy at Oakland University William Beaumont School of Medicine in 2016-2018. Following critical observation, and careful dissection, cadavers with anatomical variation were photographed and the data was analyzed quantitatively and in a descriptive way.

RESULTS

Our findings indicate branches coming off the recurrent laryngeal nerves on both the right and left side, innervating both the esophagus and the trachea. On the right side, 88.9% of the cadavers demonstrated 2-5 extra-laryngeal branches. On the left side, 74.5% of the cadavers demonstrated 2-3 extra-laryngeal branches. In relation to the inferior thyroid artery, 67.9% of right RLNs were related anteriorly, while 31.4% were related posteriorly. On the other hand, 32.1% of left RLNs were anterior to the inferior thyroid artery, while 68.6% were posterior to it.

CONCLUSIONS

Altogether, the findings show a significant number of variations in the course and branching pattern of the RLN. Anatomical consideration of the variations is essential to minimize complications associated with surgical procedures of the neck, especially in anterior cervical spine surgery and thyroidectomy surgery. The information gained in this study emphasizes the need for special considerations to surgical technique, and side preference in preserving the extra-laryngeal branches of the RLN during surgical procedures of the neck.

Assessing the Safety of Propofol Sedation in the Pediatric Intensive Care Unit

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INTRODUCTION

The United States Food and Drug Administration (FDA) published a Drug Safety Communication warning in 2016 regarding lengthy use of anesthetic or sedation drugs in children younger than three years old. The need to address uncertainties regarding anesthetic use in pediatric patients is vital; the FDA warning may cause parents and/or clinicians to postpone surgical or diagnostic procedures in children (and/or pregnant women), potentially causing more harm than if the procedure were to be performed. The primary goal of this study is to determine and assess the rate of adverse outcomes due to propofol administration from June 2008 – June 2012 in pediatric intensive care unit (PICU) patients at Beaumont Children's Hospital. A secondary goal is to examine patient histories of those undergoing procedural sedation from this time period and possible variables associated with their sedation outcomes.

METHODS

A retrospective review of patient charts from June 2008 – June 2012 at the PICU sedation suite in Beaumont Children's Hospital will be conducted. The study population will include patients age 3 years and younger who received propofol during their procedure. Variables of interest include review of systems data, anesthesia physical exam and pertinent exams, as well as complications and adverse outcomes from each patient's chart. We plan to run variable correlation, t-test, and group comparisons on the data for statistics.

ANTICIPATED RESULTS

Patients age 3 and younger who used propofol during their sedation procedures are not expected to show a significant rate of adverse outcomes.

CONCLUSION

The results are expected to support the hypothesis that using propofol for sedation procedures in pediatric patients age 3 and younger is both safe and effective. Ultimately, maintaining the goals of the American Academy of Pediatrics to minimize procedural pain is an important driving force to prevent delay or withdrawal from treatments in pediatric patients.

The Effects of Religion on Whole Body Donation within the African American Community

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INTRODUCTION

Medical schools and other health professional programs rely on whole body donations to teach students anatomy of the human body. Studies at individual medical schools point to a clear racial disparity in the rates of whole body donation between whites and African Americans. One connection that has not been explored is the possible effect religious views may have on perspectives of body donation within the African American community. According to the Pew Research Center, 87% of the group claims a religious affiliation, and 53% say they attend church at least once per week. The primary goal of this project is to discern if there is a link between religious views within the African American community and perceptions on whole body donation.

METHODS

African American adults will be recruited from a majority black church in Detroit, Michigan. Focus groups will be held, each with 5-7 participants. Prior to the focus groups, the participants will answer a short demographics survey to ascertain the role of religion in their lives. They will then engage in a 1.5-hour focus group. The goal of the questions asked is to elucidate the participants' thoughts, feelings, and perspectives on the healthcare system, and body donation. Qualitative analysis will be performed on the answers and explanations given to try to discern what factors—with a focus on religion— influence their views on body donation.

ANTICIPATED RESULTS

It is expected that religion has a major influence on the participants' willingness to consider body donation. Specifically, it is anticipated that religion lessens the interests and willingness of religious African Americans to donate their body for medical purposes.

CONCLUSION

This study will be the first of its kind, and will shed some light on the reasons that African Americans participate in whole body donation at lower rates than whites.

Self-Triage and Emergency Department Use by Homeless Population

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INTRODUCTION

While healthcare is an important and difficult realm for most people to navigate, the homeless population faces an even more complex set of barriers to care. With higher rates of illness and disability, homeless persons require more interaction with the healthcare system without much guidance to navigate appropriate resources. With those difficulties, homeless persons frequently turn to Emergency Departments (EDs) for primary, rather than only emergency, health care treatment. Regardless of the higher rates of morbidities, previous studies have found homeless persons were more likely to overuse emergency departments for non-emergency treatment. The aim is to investigate the perception and thought process for the self-triage of homeless patients.

METHODS

This pilot study will be used to inform future self-triage research. The study will recruit clients from HOPE Adult Shelter in Pontiac, MI. Participants will be asked to evaluate medical scenarios (stomach-ache, chest pain, etc.) as either emergency or non-emergency situations. They will take the pre-test (scenarios), in which they will be prompted to choose the best next avenue to seek for medical care for each scenario. They will then participate in the instructional program and retake the post-test (identical to the pre-test). The subjects' names and identifying information will not be collected. The same scenarios will be given before and after an educational resource is delivered, in order to make comparisons.

ANTICIPATED RESULTS

Compared to the pre-test scores, the post-educational session scores are expected to exhibit less inappropriate triage decisions. There is a further expectation that the number of emergency room selections will significantly decrease in the post-test.

CONCLUSION

The results are expected to support the hypothesis that the education will promote change such that self-triage capacity of participants will increase as measured by "appropriateness" score for the survey. This project could help connect homeless populations with appropriate care and decrease the healthcare cost.

Chronic Idiopathic Urticaria and its Psychological Implications in Quality of Life

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INTRODUCTION

Urticaria (also known as hives) is characterized by recurrent cutaneous flares of erythematous, pruritic wheals affecting 20% of the general population. Chronic idiopathic urticaria (CIU) is a subset of urticaria and is characterized by recurrent hives occurring at least twice per week for six consecutive weeks or longer with no known eliciting stimulus. Individuals who present with CIU often have a plethora of adverse experiences stemming from the disorder's symptomology that subsequently negatively affects quality of life (QoL). These experiences include, but are not limited to: constant discomfort from itching, lack of energy and quality sleep due to disturbed sleep cycles, irritability, and lastly, anxiety and depression, which are the most common psychiatric diagnoses. There is a current lack of research comparing the QoL between individuals with uncontrolled CIU and individuals with controlled CIU. This research project aims to better understand the difference in QoL between those who suffer from uncontrolled CIU and those whose CIU symptoms are well controlled.

METHODS

Surveys will be distributed to patients 18 years and older with a diagnosis of CIU. Participants will be categorized as having either controlled or uncontrolled hives by the allergy immunology physician. The survey asks various questions regarding how their QoL has been affected by CIU. Surveys will be collected and results analyzed using a paired t-test.

ANTICIPATED RESULTS

Participants considered to have controlled hives are expected to report a better QoL and psychological well-being compared to those who have uncontrolled hives. Furthermore, patients with uncontrolled hives are more likely to be depressed, anxious, and stressed compared to their controlled counterparts.

CONCLUSION

The status of patients with CIU (controlled vs. uncontrolled) is a definitive factor in one's QoL. Gaining a better understanding how this disorder affects patients' psychological well-being will give healthcare providers useful insights which can lead to better patient care.

Cost Comparison of Inpatient vs. Outpatient Inguinal Hernia Surgeries

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INTRODUCTION

This study seeks to quantify the actual cost difference of inguinal hernia surgeries performed in the hospital setting to those conducted in the free-standing surgical center setting. We feel that this study will provide unique insights into the cost difference between surgeries performed in hospitals vs. those performed in free-standing surgical centers. This study also seeks to quantify the cost difference between inguinal repairs done with robotic assistance and those done through the open technique. By comparing the results of this study, we can further justify or question the use of these surgical techniques in certain circumstances. In this study, our research question is, how do the costs of inpatient surgeries and outpatient surgeries compare regarding the surgical procedure performed? Similar studies in different surgical fields have shown substantial cost reductions in the outpatient setting.

METHODS

This study will be a prospective study using qualifying patients who have undergone hernia repair surgery in either the inpatient or outpatient setting. By pooling only from patients who have had their repairs from a single surgeon we can eliminate variability due to different surgical technique. The results of this study will be used to analyze several essential variables about the cost of hernia repair. In this study, we wish to enroll approximately forty patients for each surgical and location category. The data will be analyzed using a Two Samples Independent T-test and a Multivariate linear regression.

ANTICIPATED RESULTS

Compared to the inpatient group, the outpatient group is expected to exhibit lower total cost. We further expect this new cost analysis to reveal useful data in this rapidly expanding field.

CONCLUSION

The results are expected to support the hypothesis that surgeries done in the outpatient setting will result in a lower overall cost. Results from this study will allow doctors to provide optimal patient care.

Examining Color Vision Deficient Medical Students' Performances and Attitudes in Histology

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INTRODUCTION

All United States medical schools incorporate histology into their curriculum. Histology is the microscopic study of cell structure and often involves specific colored staining. Histology's role in medical education and practice underscores the need for students to understand and apply histological concepts. It has been proposed that color vision deficiency (CVD) students may struggle learning histology and it is estimated that 8% of men and 0.5% of women in the general population are CVD. No studies have quantifiably assessed CVD student performance in histology. This research objectively assesses CVD medical student performance in histology and obtains subjective information about student attitudes and experiences about histology.

METHODS

First-year medical students at OUWB (N=130) were invited to participate, and first year students at 6 other Michigan medical colleges (N=930) will be invited. Participants complete an online survey consisting of demographic questions, a colorblindness exam, 52 multiple choice image-based histology questions and a post-survey on student attitudes and experiences in histology. Analysis will compare CVD students and normal visioned students on time spent, correct answers (independent T tests), and attitudes and experiences in histology (Mann-Whitney U).

ANTICIPATED RESULTS

Compared to the normal visioned students, CVD students are expected to spend significantly more time on the image-based questions and score significantly lower. We also expect that CVD students will be unaware of their disadvantage in histology and thus are likely to seek help from professors at similar rates as their normal visioned peers.

CONCLUSION

The results are expected to quantify that CVD medical students are both unaware of their disadvantages in histology and receive lower scores on histology assessments relative to their normal visioned peers. This information will show histology and medical educators the need to specifically identify and accommodate CVD students, who otherwise may not know to seek help with their learning.

Fatty Acid Metabolism in Placenta of Obese and Non- Obese Pregnancies

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INTRODUCTION

Typical western diets contain high levels of n-6 relative to n-3 polyunsaturated fatty acids (PUFA). High n-6 PUFA levels have been postulated to contribute to higher obesity rates and its pathogenic consequences. Recent studies identified common haplotypes in the *FADS2* gene which encode delta-6 desaturase (D6D), the rate-limiting enzyme in PUFA synthesis, which were associated with the development of metabolic syndrome. Fatty Acid Transport Protein 4 (FATP4) transports arachidonic acid (AA) and docosahexaenoic acid (DHA) across the placenta. Previous studies have shown that FATP4 levels are directly correlated to maternal metabolic status, postulated to influence metabolic development of children after birth. This study aimed to assess differences in PUFA content including FATP4 and D6D levels between obese and non-obese pregnant mothers.

METHODS

Placental and umbilical cord serum samples from 14 obese (BMI >30) and 15 non-obese (BMI <25) mothers were collected at afterbirth. Substrate turnover was analyzed via gas chromatography for phospholipid composition, Enzyme-linked Immunosorbent Assay (ELISA) for quantitative protein levels, and western blotting for relative protein levels of D6D and FATP4. Statistical Analysis used the Student T-test.

RESULTS

Gas chromatography showed the obese group had an increased umbilical cord serum AA ($p = .049$), AA/Linoleic Acid (LA) ratio ($p = .0008$) and AA/DHA ratio ($p = .036$) compared to the non-obese group. There was a significant increase in AA/LA ratio ($p = .025$) and trending increased AA/DHA ratio ($p = .13$) for the placental tissue compared to the non-obese group. Anticipated corroborating results will assess potential difference in D6D and FATP enzyme concentrations for obese and non-obese placenta.

CONCLUSION

This study was designed to elucidate the role of placental fatty acid metabolism in fetal programming of Metabolic Syndrome. Differences in placental D6D or FATP4 levels may serve to allow better predictions of metabolic status of newborns into adulthood.

Correlation Between Personality Type and Self-esteem Profile in Medical Students

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INTRODUCTION

Physician burnout is an ever-increasing issue in the healthcare field. With low self-esteem playing a role in the progression of physician burnout, further research should be conducted to determine what factors contribute to lowered self-esteem of future physicians. This study seeks to better understand the correlation between personality types of medical students and their self-esteem levels. Specifically, this study will be utilizing the Riso-Hudson Enneagram Type Indicator (RHETI) as well as results from the Myers-Briggs Type Inventory (MBTI). Our two goals are to observe 1) which personality types are most common amongst medical students from the classes of 2019, 2020, and 2021 and 2) which personality type is most at risk for lowered self-esteem by correlating personality types with results from the Rosenberg Self Esteem Scale (RSES).

METHODS

This study will be a correlational study utilizing a one-time cross-sectional survey design. Student participants received a recruitment email and a web link to a survey containing questions from the RHETI and RSES. Participants who completed the survey received their results and additional resources for coping with lowered self-esteem. The research team will use ANOVA to determine if there is a statistical difference between personality types and increased risk for lowered self-esteem.

ANTICIPATED RESULTS

The research team is anticipating that a majority of students will be classified at Type One, Two, or Three on the RHETI and these groups will also show the highest risk of lowered self-esteem.

CONCLUSION

The results are expected to support the hypothesis that most students from the OUWB classes of 2019, 2020, and 2021 will be classified as Type One, Two, or Three on the RHETI and will have increased risk of lowered self-esteem. This study would act to benefit medical schools utilizing personality tests by identifying students who may need additional support during their studies.

The Use of Narrative Drawings to Improve the Understanding of Threshold Concepts in Pelvic Anatomy

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INTRODUCTION

It is important for medical students to understand and retain threshold concepts in anatomy because knowledge of anatomical structures and relationships is relevant to clinical patient care. As shown in current research, anatomy is best learned through visual demonstrations. Therefore, the goal of this project is to determine whether integrating threshold concepts related to the pelvis with narrative drawings will improve learning and retention.

METHODS

125 first-year medical students from the Oakland University William Beaumont School of Medicine (OUWB) currently enrolled in the Anatomical Foundations of Clinical Practice 2 (AFCP2) course will be provided access to learning modules which contain narrative drawings at the beginning of their pelvis unit. After the AFCP2 midterm examination, a brief survey will be emailed out. We will collect responses from students who chose to consent and submit the survey. In addition to survey responses, data from the learning modules will be collected including how much time was spent on the modules, videos and answers to post-video questions. Lastly, we will correlate student's AFCP2 course outcomes to the analyzed variables described above to determine if a relationship exists between the amount of time spent on the modules and test scores using t-test and regression analysis measures.

ANTICIPATED RESULTS

Compared to the control group, students who used the learning modules are expected to perform better on the midterm examination. Additionally, these students are expected to recall the information more clearly and accurately during their clinical rotations.

CONCLUSION

The results are expected to support the hypothesis that the use of narrative drawings will encourage interactive learning for medical students and will enhance the understanding of threshold concepts in anatomy. Overall, this study has the potential to help guide the adjustment of medical school curriculum to better meet the needs of students.

Evaluation of BAL Specimens: Morphologic Evaluation of Bronchoalveolar Lavage Specimens for Fungal Organisms and Correlation with Clinical Features and Other Laboratory Findings

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INTRODUCTION

Bronchoalveolar lavage (BAL) is performed to evaluate for lung diseases and is used to evaluate for opportunistic infectious organisms. At Beaumont Hospital Royal Oak (BHRO), the relationships between the fungal cytomorphologic findings from BAL sampling and other clinicopathologic features is unknown. The primary goal of this project is to determine if there is a clinical significance to cytomorphologic fungal presence or other clinicopathologic features in BAL specimen. If it is determined that there is a clinical significance, this project will determine if the presence of fungal organisms in BAL specimen relates to clinical history, subsequent therapy, microbiologic culture results, and cytomorphologic findings.

METHODS

We will analyze all BAL fungal specimen samples at BHRO in 2016 and quantify and qualify the morphological results. To maintain rigor and limit bias, we will review the specimen slides blindly without corresponding patients' electronic medical records (EMR) and vice versa. We will then compare the patients' morphological findings with their EMR information; we will utilize the following data from the patient's EMR: age, gender, past medical history, reason for admission, reason for BAL, and if antifungal therapy was administered. We will perform multivariate statistical analysis relating morphological findings to culture results.

ANTICIPATED RESULTS

We anticipate that this project will yield one of the following outcomes:

1. The presence of fungal organisms in BAL specimens will have clinical and therapeutic significance in a subset of cases regarding patient therapy.
2. There will be a subset of cases in which cytomorphology shows fungal organisms but other microbiologic studies will be negative.
3. Background cytomorphologic findings may be related to the presence or absence of fungal organisms in cytology specimens, or to the likelihood of positive microbiologic studies.

CONCLUSION

Our findings could change how cytopathologists report the presence of fungal cytomorphology in BAL to clinicians and the treatment that patients may receive.

Energy and water insecurity and its effect on the health and safety of children under 3 years of age

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INTRODUCTION

Energy security plays a critical role in the growth and development of young children. It has previously been shown that young children with energy insecurity had greater odds of household and child food insecurity, increased hospitalizations, caregivers reporting fair/poor health of the child and increased risk of unintentional injury. Our study aims to understand and categorize the effects of a lack of utilities (gas, electric, and water) on the health and safety of children under the age of three in Metro-Detroit, Michigan. Secondly, we aim to quantify prevalence and demographics within the population to better understand the needs of the community.

METHODS

This study is a prospective, cross-sectional design using data from a single survey administered to parents or guardians of children under three years of age who are identified at Beaumont Health Royal Oak with concerns of utility shut-off. The survey will collect information about energy insecurity, at-risk practices in the home to combat the latter, and demographics. The survey data will then be transcribed to a data set, aggregated and analyzed accordingly.

ANTICIPATED RESULTS

Our results will describe the extent of this issue in a sample population in metro-Detroit and explore the at-risk behaviors of families with a young child as a result of a loss of home utilities. To our knowledge, there has not been a similar study published within the state of Michigan or metro-Detroit.

CONCLUSION

Our results will provide support for a change in utility restoration policy on a local and state level. It will inform service companies and governing bodies of the need for utility shut-off prevention for young children. Health care professionals, local governing bodies and lawyers can work together using this data to support the restoration of utility services and advocate for a healthy growth environment for children early in life.

Evaluation of Quality of Life in Parents of Pediatric Atopic Dermatitis Patients

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INTRODUCTION

Atopic Dermatitis (AD) is a chronic inflammatory skin disease that often first affects children during their first year of life, but can remain throughout a lifetime. Also known as eczema, AD is mainly characterized by itching, sometimes so intense that it can affect sleep and cause skin infections. While there have been many studies on the effect of AD on the quality of life of patients themselves, there is a lack of studies on the impact on the parents/caregivers. The main goal of this study is to evaluate the quality of life of parents/caregivers, especially in regards to psychosocial qualities, disease severity, and disease control. The secondary goal of this study is to determine if there is a significant difference in quality of life between primary and secondary caregivers. Furthermore, this study will determine if parents/caretakers are taking any measures to support their quality of life currently.

METHODS

100 parents/caretakers of pediatric patients with AD between the ages of 1 month and 12 years were given the survey to complete at the time of their child's doctor's appointment. The survey covered a wide range of characteristics, including quality of life in regards to physiological, social, and physical health, perceived disease severity, and perceived disease control. It contained questions taken from various validated questionnaires, including PEDS QoL, Family Dermatology Life Quality Index, Parent's Index of QoL in AD, POEM, and PROMIS. Basic statistical tests will be performed to analyze the data collected, using a combination of rank correlation, variable correlation, cross tabulation, t-test, and two group comparisons.

ANTICIPATED RESULTS

The quality of life in parents/caretakers will be significantly affected by their child's AD. Furthermore, the primary caretakers will demonstrate a lower quality of life when compared to secondary caretakers.

CONCLUSION

The results are expected to support the hypothesis that the quality of life in parents/caretakers is significantly affected by their child's Atopic Dermatitis. Furthermore, they will justify the need for future physician practices of support for parents/caretakers.

Stereotactic Radiosurgery as a Component of Treatment for Brain Metastases in Small Cell Lung Cancer Patients

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INTRODUCTION

Small cell lung cancer (SCLC) aggressively metastasizes to the brain with a poor prognosis. Whole brain radiation therapy (WBRT) is the current standard of care based on historical treatment paradigms. Stereotactic radiosurgery (SRS) is known to preserve quality of life and increase intracranial local control compared to WBRT alone for non-SCLC and other non-lung histologies. Here we report outcomes and failure patterns for SRS used as upfront or salvage therapy for SCLC.

METHODS

The charts of 44 patients with brain metastases from SCLC who underwent SRS as either upfront or salvage therapy at Beaumont Hospital, Royal Oak from 2001-2017 were retrospectively reviewed. Demographic data, use of prior prophylactic cranial irradiation (PCI) or WBRT, type of first failure (local vs. elsewhere brain), and dates of treatment failure and death were recorded. Kaplan-Meier survival analysis was used to estimate overall survival (OS) and neurologic progression-free survival (nPFS) from SRS date.

RESULTS

Median patient age was 63.5 years (range = 34 – 86). 5 patients (11%) had prior PCI, 24 (55%) had prior WBRT, and 10 (23%) had both prior to salvage SRS. 5 patients (11%) had SRS as upfront treatment. Type of first brain failure post-SRS was local in 4 patients (9%), elsewhere in 25 (57%), and the remaining 15 (34%) were controlled at last follow-up. Median OS was 7.6 months (95% CI: 6.1-9.1) for all patients. Median nPFS was 3.7 months (95% CI: 2.5-4.9) for all patients and 9.2 months (95% CI: 4.2-14.2) for upfront SRS patients.

CONCLUSION

SRS effectively salvaged or primarily treated SCLC brain metastases with a median overall survival similar to those with newly diagnosed brain metastases from other histologies. Future analysis of this dataset will study prognostic factors for PCI or WBRT failure. Prospective studies evaluating upfront SRS for SCLC are warranted.

The Impact of Social Media on Workplace Violence Towards Physicians in the Emergency Department

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INTRODUCTION

Workplace violence is a concern in the emergency department (ED) where physicians see large patient volumes and a variety of illnesses. Previous studies have shown that nurses, technicians, and staff members in the ED have experienced violence, yet there is limited research on violence towards physicians themselves. In addition, social media is increasing in accessibility and popularity, but has not yet been well studied as a potential form of workplace violence. The goal of this study is to investigate the prevalence of workplace violence on ED physicians via social media and how the physicians respond in turn.

METHODS

This is a prospective study utilizing the same formatting and questions of the 2005 survey by Kowalenko et al., with an extended section including social media forms of workplace violence on ED physicians. Study participants will be registered Michigan College of Emergency Physicians (MCEP) attending physicians currently practicing in the United States. We will use aggregate data collected from a 12-month period and the data will be processed and analyzed in the same methods as Kowalenko et al, 2005.

ANTICIPATED RESULTS

To our knowledge, forms of social media violence towards physicians have not yet been well studied. Therefore, we anticipate an incidence and prevalence of violence towards ED physicians in the workplace via social media.

CONCLUSION

Studies have shown that emergency departments are a setting where there is a risk of violence towards the staff, including physicians. Furthermore, with the increasing popularity of social media, it is a potential and concerning source of violence towards ED physicians. With physicians and the entire emergency department staff in mind, this data can update and provide insight into how future ED safety and prevention methods are implemented.

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